not at all mean satisfied labor and efficient work. The premier deprecated severely the intentional slowing down of production, which, although he did not say so, has been emphasized by government control. But even more important is the evidence that the premier is firmly converted to the idea that government ownership or control does not mean the end of labor troubles and strikes. "The premier contended," says the despatch, "that there was no evidence that harmony would prevail with the workers under state ownership. He instanced the recent miners' strike in Yorkshire, which he declared was a strike against the government, and the experience of the railways under government control. Therefore, he thought the whole basis of the Sankey report that state ownership would promote harmony had been falsified." The argument that government ownership and control will mean an end to strikes and similar labor difficulties seems to die hard. But two blows in two successive weeks, one from the British premier on the other side of the ocean, and the railway shopmen's strike on this side, will no doubt go far towards downing it at last.

Economies Effected by Signals

THE increased cost of material and labor makes it necessary for the railroads to effect economies in every way possible. This condition prevails not only in this country but throughout the world. One method being considered for reducing costs on the British railways is by the general installation of automatic signals to replace their present system of manually operated signals. The New South Wales Government Railways were confronted with a heavy increase in traffic and found it necessary to double track a considerable mileage beyond the metropolitan area. Although operating under the British Board of Trade standards with respect to the safe working of the lines, the officers have found it advisable to install automatic signals on certain stretches, which have proved to be a profitable investment. Under the operating conditions on these lines it was found that signals could be used to advantage in the suburban areas and also on the country stretches of the double track lines where the distance between stations is greater than the length of block stations necessary to handle the existing traffic.

On the single track lines in New South Wales it is felt that automatic signals cannot be used to advantage, as the electric tablet or electric staff system is employed. The larger part of the system is interlocked. The installation of signals in the suburban area was found necessary in order to shorten the headway between trains and in this manner increase the capacity of the tracks. On the double track country lines automatic signals were installed to facilitate the movements of through trains and to obviate the necessity for the force of men that would have been required to operate the old type of signals.

While a greater expenditure in first cost was necessary than for a manual system, the smaller number of employees required, with the increased safety of operation through the elimination of the human factor in the operation of the signals, has proved of great advantage. The economy effected shows the value of such installations. On the territory where 108 automatic block sections were provided it would have been necessary to construct 46 additional interlocking towers and use a staff of 138 men whose wages would have amounted to at least $116,640 per annum. The saving in wages by using automatic signals in a short time more than offset the increased investment. Under the operating conditions now existing on many lines in the United States automatic signals can also be used to advantage as they will produce similar savings.

Has Railroad Capital or Railroad Labor Been "Exploiting?"

THE FUNDAMENTAL POSTULATE upon which the advocates of the Plumb Plan based their arguments for it in the hearings before the House Committee on Interstate Commerce was that the railroads should not be privately owned and managed for private profit, but should be government-owned and operated by the employees "at cost." Their operation by private companies for private profit results, it was asserted, in the public on the one hand and the railroad employees on the other being "exploited" to get huge profits for the private owners.

If this contention is based upon experience, and not upon mere theory, it must be possible to show that under private ownership and operation, the railroad owners actually have received large and increasing profits, while, in order to make these profits, they have exploited the public by charging it ever higher and higher rates, and exploited the employees by keeping down or reducing their wages.

In fact, in one of his closing statements to the House Committee on August 12, Glenn E. Plumb made numerous charges to the effect that the railroad companies have issued fictitious securities, have given their stockholders stock bonuses, have padded their property investment accounts, and have done numerous other things of similar character with the purpose and effect of enabling the owners to make enormous profits at the expense of the public and the employees. When he attempted to supply any facts in support of his allegations—a thing Mr. Plumb seldom does—he referred chiefly to transactions which he asserted had occurred since the year 1900.

We do not wish to cause pain and embarrassment to Mr. Plumb and his fellow leaders of the "red" element of organized labor by applying the standard of cold official statistics to their wild ravings against capital. It is necessary, however, for the enlightenment of the public that this be done. Let us therefore take the official statistics of the Interstate Commerce Commission for the years 1900 to 1917, when the railways were under private management, and see just how much support they give to Mr. Plumb's series of allegations. Let us see who, if anybody, connected with the railroads, did any exploiting during this period; and if so, who really were the exploiters and the exploitees. We shall add to the Commission's statistics for the years 1900 to 1917 some estimates based upon the available statistics of the Railroad Administration for the year 1918 and for the first six months of 1919, to show who, if anybody, connected with the railroads, has been doing any exploiting under government operation.

The accompanying table shows, for the seven year period 1900 to 1907, and the ten year period 1907 to 1917, and also, as closely as can now be estimated, for the two year period 1917 to 1919, and the nineteen year period 1900 to 1919, the increases which have occurred in the book cost of road and equipment, and the operating income of the railway companies, in the number of their employees, and in the total compensation of the employees.

If the reader will take the trouble to study these statistics he will see that they throw much light upon the validity of the allegations made by Mr. Plumb. They show that in the seven years from 1900 to 1907 the book cost of road and equipment, as reported by the railway companies and compiled by the Interstate Commerce Commission, increased about 27 per cent. Meantime their operating income increased 59 per cent. ("Operating income" is all that is left to a railway company after it has paid its operating expenses and taxes; and every dollar of interest and dividends it pays, and every dollar of earnings which it invests in its property,

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comes out of operating income. Therefore, operating income is the best measure available of the profitableness of the railroads to their owners.) During this same period of seven years the number of railway employees increased 64 per cent, and the amount of compensation paid to them increased 86 per cent. During this time the profits of the owners of the railroads increased faster relatively than did the average wage per employee.

The statistics for the ten year period 1907 to 1917 tell a somewhat different story. During this period the railroads were subject to strict regulation. Their net capitalization increased less during this time than their book cost of road and equipment, but their books were kept under an accounting system prescribed by the Interstate Commerce Commission, and therefore the additions to their book cost of road and equipment must have been correctly made. The Interstate Commerce Commission has not given us its figure for total book cost of road and equipment in 1917, but its figure for 1916 exceeded $17,500,000,000, and therefore we have assumed that for 1917 it will be about $18,000,000,000, although it may be less.

The increase in property investment in ten years, then, was about 38 per cent, while the increase in operating income was less than 40 per cent. (The year 1917 was the best ex-

Years	Book cost of road and equipment	Operating income	Number employees	Total compensation of employees
1960	$10,263,313,400	$477,284,030	1,017,653	$577,284,841
1967	13,030,344,328	760,277,389	1,672,074	1,072,386,427
Increase in 7 years	$2,767,030,928	$282,993,359	654,421	$495,101,586
Percentage of increase in 7 years...	26.9	59.3	64.3	85.8
1907	$13,030,344,328	$760,277,389	1,672,074	$1,072,386,427
1917	18,000,000,000*	1,069,750,514	1,732,703	1,738,796,046
Increase in 10 years	$4,969,655,672	$309,473,125	60,629	$666,409,619
Percentage of increase in 10 years..	38.1	40.7	3.6	62.1
Increase in 17 years	$7,736,686,600	$592,466,484	715,050	$1,161,511,205
Percentage of increase in 17 years..	75.3	124.1	70.3	201.2
1917	$18,000,000,000*	$1,069,750,514	1,732,703	$1,738,796,046
1919	18,500,000,000*	947,000,000†	1,848,774‡	2,834,607,068‡
Increas ein 2 years	$500,000,000	$122,750,514‖	116,071	$1,095,811,022
Percentage of increase in 2 years...	2.8	12.9‖	6.7	63.
Increase in 19 years	$8,236,686,600	$459,715,970	831,121	$2,257,322,227
Percentage of increase in 19 years..	80.2	98.5	81.7	391.

*Estimated.
†Average for years 1915, 1916 and 1917, on which government's guarantees to companies are based.
‡Based on January, 1919, statistics.
‖Decrease.

cept 1916 in point of operating income that the railroads have ever had. A very different story regarding the increase of operating income would be told if we compared the year 1915 with the year 1907.) In the same ten years the number of railroad employees increased less than 4 per cent, while the total wages paid to them increased 62 per cent. It can hardly be said that during this period the railroad companies were very successful in increasing their profits by "exploiting" their employees. The increase in what the employees got out of the railroad business was relatively and absolutely much greater than the increase in what the owners got out of the business.

In the period of seventeen years, 1900 to 1917, the increase in the book cost of road and equipment was 75 per cent, and the increase in the number of employees only 70 per cent. Meantime, operating income increased only 124 per cent, while the total compensation of employees increased 221 per cent. Relatively and absolutely the employees increased their income from the business during this time much more than did the capitalists against whom Mr. Plumb directs his melodramatic series of "I charges."

What was happening to the public meantime? Was it being "exploited" to make a Roman holiday for the owners? The statistics of the Interstate Commerce Commission show that the average receipts per ton per mile declined from 7.3 mills in 1900 to 7.15 mills in 1917, and that there was a slight decline in the average receipts per passenger per mile. In spite of all the crimes and misdemeanors alleged to have been committed by the railway companies during these seventeen years, the public was charged lower rates at the end of the period than at its beginning, and the average wage of employees had increased 75 per cent.

We come now to the period of government operation of railroads. The railroad owners have had no opportunity during this time to exploit the public. The return they are being paid on their capital is based upon the average operating income earned by them in the three years ending on June 30, 1917, and is about 13 per cent less than what they received in 1917. Meantime how has labor been getting on? The pay roll of the Railroad Administration for January, 1919, which contains the latest statistics available, indicates that since 1917 the total number of railway employees has increased about 7 per cent, while the total wages paid to them have increased at the rate of 63 per cent per year. Mainly in order to pay this advance in wages the public has had its passenger rates increased 50 per cent and its freight rates at least 25 per cent; and it is defraying a huge railroad deficit from taxes. If anybody connected with the railroads has been "exploiting" the public during this time, it has not been the terrible Morgans, Rockefellers, and so on, but the Stones, the Garretsons, the Lees and other leaders of railroad labor organizations.

Reviewing, now, the record of the last nineteen years, we find it shows that the increase in the book cost of road and equipment, which represents the investment made in the railroads, and which Mr. Plumb says is enormously inflated, has been about 80 per cent, while the increase in the operating income from which the railway companies are deriving their return has been 98 per cent. Meantime, the increase in the number of railroad employees has been less than 82 per cent, while the increase in their annual compensation has been 391 per cent.

Let us state the matter in another way. In 1900 the operating income of the railways was $477,000,000 and the wages paid to labor were $577,000,000. The operating income upon which the railroad companies' guaranteed compensation for 1919 is based is less than $950,000,000 while the total compensation of railroad employees in 1919 is running at the rate of approximately $2,835,000,000. *Nineteen years ago the wages of the employees were about $100,000,000 more than the operating income of the companies, while in 1919 the compensation of the employees is running at the rate of $1,900,000,000 a year more than the return guaranteed to the companies.*

In the face of facts such as these the leaders of the labor organizations are demanding still another increase of $800,000,000 a year in wages, and, at the same time bitterly assailing the companies for alleged "profiteering" and for seeking legislation which will enable them to pay perhaps 6 per cent upon their property investment. The increase in the wages of the employees since 1900 has been over four times as great, both absolutely and relatively as the increase in the operating income of the companies.

Let us consider these statistics regarding capital return and wages in connection with statistics showing the service rendered to the public. In the last nineteen years, as we have seen, the book cost of road and equipment has increased about 80 per cent and the operating income of the companies about 98

per cent. The number of tons carried one mile has increased meantime 160 per cent and the number of passengers carried one mile about 181 per cent. The traffic handled annually for the public having increased almost twice as much in proportion as the book cost of road and equipment and the operating income of the companies, it follows that the *capital cost* of moving a ton one mile, or a passenger one mile, is now a little over *one-half* what it was nineteen years ago. Meantime, the annual compensation of the employees has increased 391 per cent. In consequence the labor cost of moving a ton one mile and a passenger one mile is now *more than twice as great* as it was nineteen years ago. Again we ask, since the labor agitators indulge in so much wild talk about "exploitation," who do these figures indicate has been "exploiting?"

It is difficult for a generous and rational mind to decide whether Mr. Plumb and the other labor agitators are prompted by ignorance, malignity or sheer recklessness in indulging in the sort of wild misrepresentation and melodramatic vituperation regarding railroad management with which they recently have been regaling the House Committee on Interstate Commerce and the American public. One good result they do cause by it, however. They prompt people who know something of the facts regarding the railroad business to present them; they jar the public into taking an interest in the facts; and the more the facts are presented, and the more widely they become known and are understood by the public, the better chance there will be of securing the return of the railroads to private management under a system of regulation under which they can be efficiently operated and can become prosperous again.

Far be it from the *Railway Age* to say the statistics presented above show that railroad labor has been "exploiting" the public. But if it cannot truly be said that railroad labor has been exploiting the public during nineteen years when the labor cost of moving a ton one mile has more than doubled, surely it cannot truly be said that railroad capital has been exploiting the public when it can be shown that during the same period the capital cost of moving a ton one mile has been reduced by almost one-half.

New Books

The Design of Walls, Bins and Grain Elevators (third Edition), by Milo S. Ketchum, dean of the College of Engineering, University of Colorado, 6 in. by 9 in., 556 pages, illustrated, bound in cloth, published by McGraw-Hill Book Company, 239 West Thirty-ninth street, New York.

This constitutes an amplification of the preceding edition of this well known treatise on structures subjected to the lateral pressures of earth and other materials. The additional material consists of data on the economic design of reinforced concrete retaining walls, formulas for wedge-shaped reinforced concrete beams, formulas for calculating the load on bin walls according to several methods, the calculation of pressures in sand boxes and one feature—which will be most welcome to a great many engineers—fully worked out problems in the design of retaining walls and bins. A report on the design of retaining walls adopted by the American Railway Engineering Association in 1917 has been added to this volume. The arrangement of the matter in the present edition follows that of its predecessor, commencing with a general explanation of the theory of lateral pressures on walls and bins as expounded by various authorities, reports of various experiments and types of walls constructed with detailed explanations of retaining wall design as mentioned above. The second part of the book is devoted to the design of coal bins, ore bins, etc., and the third portion to the design of grain bins and elevators. There is also an appendix of about 70 pages on plain and reinforced concrete materials, design and specifications.

Letters to the Editor

How About Eliminating the Flagman?

To the Editor:

I was much interested in the article on "Flagging and Its Relation to Railroad Accidents," by C. C. McChord, in the issue of the *Railway Age* of June 20, page 1528. I consider it a very good treatise on the shortcomings of flagmen and the disastrous results often attributed to the failure of the flagman to give the engineman warning in time to avert collisions.

I wonder if the author has given very careful consideration to one other view that might be taken in regard to the prevention of collisions in block signalled territory; that is, eliminating the flagman, and depending entirely on the engineman's observance of the signal indications. Every instance of collision cited shows that in those instances the presence of the flagman did not avert the accident, and to these can be added a much longer list of such instances. If there were any records to show how many accidents the presence of the flagman in block territory averted, I wonder how it would compare with the other. In very few cases has it been shown that the signals failed to give a proper warning, and I believe that the proportion of accidents due to improper automatic signals is at least as small as that caused by air brake failures. It cannot be disputed that an occasional false clear indication is given by an automatic signal, but the investigation of accidents seems to show that false clear signals are responsible for a very small percentage of them, and the fact that the accidents occurred at those times is positive proof that the practice of having a flagman out did not prevent them.

It was my good fortune recently to be present at a conference on this subject where the operating officers of one of the largest railroads in North America begged for the opportunity of eliminating flagmen in automatic block signalled territory, but they were denied the privilege through the joint action of other roads and a government body. These men had the courage to do this even though there had been rather a bad accident not long before on their road in automatic territory where there was some, but not conclusive, evidence that a signal of an old design had given a false clear indication. Had they carried out such a procedure, that road would, no doubt, have been able to furnish interesting and valuable information on the value of the flagman in automatic territory. There is no doubt but that such a practice would increase the capacity of a railroad by eliminating the time required to recall a flagman. Possibly the increase in alertness of the engineman in observing signal indications and in acting on the instructions given by the signals, which he would know was the last warning he could have of conditions ahead, would reduce rather than increase the number of such accidents. Would it not seem more logical to make full use of and put full dependence on the automatic signal before we augment it with an automatic stop? Perhaps we would find the automatic stop was needed after all, but there certainly is a chance that the automatic signal is sufficient if a way is found to cause its indication to be obeyed. There does seem to be foundation for the argument that the presence of the automatic signal helps to make the flagman careless and the presence of the flagman tends to make the engineman careless of obeying the signal indications. If this can be corrected by elimination, it must be the flagman. If it must be corrected by addition, it seems we must add the automatic stop, in which event will we still require the flagman?

C. H. T.

The Import Situation in England and France

Economic Conditions Have Made It Necessary to Restrict Imports; Present Regulations More Favorable

By Robert E. Thayer,
European Editor of the *Railway Age*

LONDON, July 31, 1919.

THE ECONOMIC POLICIES formulated by England and France immediately upon the signing of the armistice regarding imports have been exceedingly discouraging to American manufacturers of export materials. Both of these countries realizing the almost disastrous condition of their local industries made a very determined effort to protect them against "foreign invasion" by establishing rigid embargoes against the importation of materials. This gave their own local industries an opportunity to supply the particular needs of these countries and at the same time prevented any increase in the already collosal national debt. This policy has been found to react against them as it has not been possible for the home industries fully to supply their needs. The governments of Great Britain and France have, therefore, made considerable concessions in the matter of restricted imports, so that now exporters of railway materials have a much clearer field than heretofore. The need of France for railway material has been well stated by the Paris correspondent of the "London Post," who, under date of July 30, states that it will be a long time before France is again in a position to meet the demand for such manufactured goods as railway rolling stock, whereas these things have been urgently required for many months past for the purpose of enabling the transport service of the country to be readjusted to something like a normal footing.

France, however, has increased the duties on certain classes of goods up to as high as 300 per cent;—that is the existing rates of duty are to be multiplied by factors or coefficients varying up to three, according to the protection desired.

Both France and England have been critized for having taken such strong measures, but neither of these countries can be blamed for wanting to keep as much business for their own manufacturers as possible and thus build up their impoverished industries and provide labor for their demobolized men. The credit situation was so bad and the problem of reconstruction so vast and complicated that, true to the inborn conservatism of these nations, they sought protection behind a rigid embargo to give them time to really find themselves. The magnitude of the war, and the problems arising therefrom were wholly without precedent and were impossible of immediate solution. The American nation as a whole has not experienced the great trials, both physical and financial, of our allies in Europe. It was thus hard for us to appreciate fully the mental attitude of those nations.

After the signing of the armistice, the American manufacturers, realizing the great need for railway equipment in France and England, came over in large numbers expecting to obtain a large amount of business. There were and are quantities of railway business to be done in these countries, but at the time they were not ready to go out into the open market for materials until they determined what it was possible for them to obtain in their own countries. The rigid embargo gave these countries an opportunity to determine their actual conditions, and to find out exactly what they could do for themselves. They have realized that their problem of reconstruction is so vast that outside help must be obtained, and thus the removal of restrictions has been very pronounced during the past few months.

On June 14 a decree was issued by the French government removing the restrictions on all goods imported into France, but at the same time placing an ad-valorem surtax on such goods which varied from 5 to 45 per cent. This was only a temporary measure which has been changed (July 8) to an increase in the duties, as described above, by multiplying existing duties by certain coefficients. This change was made to facilitate the application of the increased duties and to eliminate possibilities of disputes. In view of the necessity of not exceeding the limits of a just equalization of these tariffs, the government will continue to follow the markets closely and will reduce the coefficient figures when necessary. An inter-ministerial commission has been established for the purpose of preparing periodical revision of these coefficients, in order that the schedule may correspond as exactly as possible to the present and pre-war values. While these figures will be quite burdensome to many of our American manufacturers, particularly while the present rate of exchange between the United States and France is so low, it was felt necessary to take steps to assist the French industries to reestablish themselves, particularly on account of the fact that at the present time the exports of France only represent one-sixth of the imports.

The following table gives a list of the items of particular interest to railway supply manufacturers together with the coefficients which are to be used in multiplying the present rate of minimum tariffs to obtain the new tax:

Articles	Coefficient
Fine steel for tools	2.7
Special steel containing—	
At least 0.5 per cent of nickel	1.9
From 0.5 to 6 per cent of chromium	
From 9.5 to 6 per cent of tungsten	
From 0.2 to 2 per cent of molybdenum	
From 0.1 to 0.5 per cent of vanadium	
From 0.1 to 0.5 per cent of titanium	
Special steel containing—	
More than 6 per cent of chromium	1.9
More than 6 per cent of tungsten	
More than 2 per cent of molybdenum	
More than 0.5 per cent of vanadium	
More than 0.5 per cent of titanium or any other rare elements	
Wheels, tires, and wheel centers of iron or steel—	
For railway and tramway cars and carriages	2.6
For locomotives	2.6
Axles—	
Straight axles for railways and tramways, axles not specially mentioned, of iron or steel	3
Crank-axles for locomotives of iron and steel	3
Steam and other engines—	
Steam engines, stationary without boilers; stationary steam pumps; various gas and air compressors; gas, petrol, alcohol, hot-air and compressed air motors and those operated by any other gaseous or explosive mixture as well as all other motors not mentioned	2.6
Locomotives	2.6
Tenders for steam locomotives	2.3
Dynamo-electric machines	2.9
Electric and electro-technical apparatus containing coils of insulated metallic wire	2
Electric and electro-technical apparatus not containing coils of insulated metallic wire	2
Machine tools	3
General machinery—	
Pulleys for transmitting power, lifting apparatus balances, scales, fixed railway and tramway stock, presses	2.7
Straight axletrees mounted as material for railways and tramways	3
Component parts of boilers and similar apparatus of pressed or welded sheet iron	3
Balls for ball bearings	1.8
Rough frames and bodies of dynamos and electric motors, armature crosses, covers of electrical collectors ("fourreaux de collecteurs"), solid poles of dynamos and alternators, of iron or steel wrought or swaged of molded iron or steel, of malleable cast iron, of pressed or welded plate	3
Springs of steel for carriages, automobiles, railway carriages and wagons or locomotives	3
Component parts of copper, pure or alloyed with any metal, cast, molded, wrought (brasses, cocks, and accessory apparatus for water, gas, and steam, etc.)	3

Component parts of machines and of shafting, not specified, of two or more metals, such as iron, steel, cast iron, copper pure or alloyed with any metal named in the preceding articles, such as brasses, cocks, and accessory apparatus for water, gas and steam	3
Wires and cables, insulated, for electricity, composed of cores of iron, steel, copper, or an alloy of copper, covered with—	
Silk in combination with india-rubber or gutta-percha, without protective covering of metal	3
India-rubber or gutta-percha alone or in combination with material other than silk, without a protective covering of metal	3
Other, if the metallic core has a diameter:	
Equal to or greater than 5/10 mm	3
Less than 5/10 mm	3
Dynamo armatures and component parts, such as coils, solid or hollow, of metal surrounded by insulated copper; worked parts of metal, fitted or not, for electric machines, electric apparatus, electrotechnical apparatus, transformers and other electrical appliances	3
Tools with or without handles* of cast iron or steel (except twist drills [American drills] and other drills, screw taps, dies for screw stocks, stamps and matrices, reamers and milling cutters in one piece)—	
Saws—	
Circular saws, endless band-saws, fret-saws, hand-saws	2.7
Files and rasps, cut or pointed, finished or not	2.7
Vises of all kinds, diestocks, stocks and dies, ratchet braces, breast drills, spiral drills, monkey wrenches, with wooden handles, adjustable spanners, and others	2.7
Mechanics' tools—	
Shear blades, tools for threading, turning, planing, mortising, "a moleter," reaming blades, sockets for reamers, reamers and milling cutters with blades	2.7
Other tools	2.7
Articles of cast iron (neither turned nor polished)—	
Railway chairs, paving plates, furnace plates cast in the open mold	3
Straight cylindrical pipes, for canalization, 7 mm. or more in thickness. Beams and columns, solid or hollow, not ornamented; frames of columns simply pierced with holes; retorts for the manufacture of gas; solid bars for grates, even put together; bars and plates for furnaces; straight bars of solid section; vats of large size for industrial purposes; inspection doors; plates for sewers and similar rough castings	3
Straight cylindrical pipes, for canalization, less than 7 mm. in thickness; water and like unions, such as elbow pipes, branched pipes, straight joints (including joints furnished with rough flanges drilled)	3
Manufactures of case-hardened cast iron	3
Iron-work for carriages, especially such as enters into the construction of railway rolling stock (including buffers and couplings)	3
Tubes of iron or steel	3
Carriages—	
Carriages to run on rails, upholstered or not, for ordinary gage tracks, including passenger carriages, good wagons, ballast trucks, and tramway carriages†	1.2
For narrow gage tracks—	
Passenger carriages	1.2
Goods wagons	2.4
Ballast trucks	2.6
Tramway carriages†	1.3
Bodies, chassis or bogies, or parts of bodies, chassis or bogies of railway or tramway carriages or wagons	1.3
Paint and other brushes—	
Paint brushes of martens' or other animal hair, except pigs' or boars' bristles, mounted on quill or on wooden, bone, etc., handle, with or without ferrule of non-precious metal	1.8
Paint brushes of pigs' or boars' bristles—	
Common wooden handles, with or without metal ferrule	1.8
Fine wooden, bone, celluloid, etc., handle	1.8

*Handles of fine materials are subject separately to the duties payable on manufactures of the material of which they are composed.
†The motors pay duty according to kind.

In England there has been no increase in the custom rates with the removal of restrictions. A revised list of exports from the United States for which a license is not necessary, corrected up to June 17, 1919, was recently published in the "Anglo-American Trade," the monthly bulletin of the American Chamber of Commerce in London. The following list taken from the published list applies particularly to railroads:

Abrasive wheels.
Carpenters' tools.
Cells, Edison and component parts, for electrically propelled vehicles.
Chucks.
Die heads.
Dies and die stocks.
Drill presses.
Drill sleeves and sockets.
Drills.
Electric batteries, secondary.
Emery stones.
Expansion bits.
Files.
Friction clutches.
Gages.
Grease cups.
Grinding stones.
Hacksaw blades.
Hammer heads, iron.
Hammers: Engineers', hide, household or upholsterers', lead.
Hand screwing machines.
Hatchets.
Injectors and ejectors.
Jacks, motor car and track.
Lathe carriers.
Lathe dogs.
Lubricators.
Machinery: Prime movers, except agricultural and electrical textile, woodworking and parts thereof driven by power, and suitable for use in cutting, working or operating on wood, including: sawing machines of all descriptions, general joiners, mortise, tenon, and boring machines, lathes and rounding machines, box and cask making machines, and all accessories thereto, scraping and sandpapering machines, wheelwright machinery, firewood making and bundling machinery, wood wool fibre and pulp machinery, saw sharpening and setting machines, saw stretchers and brazing apparatus, all machines for grinding, planing or molding irons. Unenumerated (not including typewriters and sewing machines.)
Machine tools and parts thereof.
Machine vises.
Micrometers.
Milling cutters.
Mitre blocks and scrapers for metal.
Mitre boxes.
Motors, electric, up to ¼ h.p.
Motors, electric rolling mill for auxiliary, driving up to 250 h.p.
Motors, single phase repulsion induction.
Oil, Fish, viz., train, blubber, sperm or head matter, animal coco-nut, unrefined, refined, mineral jelly (including vaseline), olive, palm, lubricating oils, turpentine, essential (if not capable of retail sale as perfumery) unenumerated.
Pipe cutters.
Pipe tongs, adjustable.
Pipe vises.
Pipe wrenches.
Pliers.
Pressure regulators.
Pressure and vacuum gages.
Punches.
Reamers.
Rods, copper, steel, and iron wire.
Saws, band circular, crosscut, kitchen and others.
Screwing tackle (i. e., chasers, dies and stocks, taps and thread milling cutters).
Smiths' tools.
Spanners.
Steam traps.
Swage shapers.
Tapping attachments.
Taps.
Tap wrenches.
Time recorders, and parts thereof.
Tool holders.
Union coupling, pressed steel.
Water gage fittings.
Wire: Brass, copper, coppered steel spring, phosphor bronze, steel wire—coppered and flattened, tinned mattress, wire leading in nickel copper.
Wood boring bits.

At the same time, when the licenses were removed from the articles mentioned above, important concessions were granted in gun metal, brass or bronze valves for gas, water and steam, which permitted an importation of 100 per cent of the 1916 imports. The importation of Yale triplex blocks is permitted to an amount equivalent to the 1913 imports, the business to be given to regular pre-war importers.

There are still some items requiring individual licenses. These include the following:

Ball bearings.
Cables and wires, electric (other than flexible wires for telephony and house wiring).
Electrical accessories and parts thereof, including fan motors.
Fan blowers and forges.
Hoists, electric.
Jacks, except motor car and trap jacks.
Motors, electric and parts thereof other than for renewals, except (a) small motors up to ¼ h.p.; (b) rolling mill motors for auxiliary driving up to 250 h.p.; (c) single phase repulsion induction motors.
Finch bars.
Pipes, cast iron and fittings.
Pulleys, iron and steel, except pressed steel pulleys, of which 200 tons (actual net weight) are to be admitted until September 1.
Pulleys, wooden.
Pulley blocks, steel, except Yale triplex.
Roller bearings.
Shop cranes, portable.
Spring cotters.
Spring washers.
Trolleys and trucks for warehouse and wharf.
Tubes, welded iron and steel up to 2 in. in diameter.
Valves, iron and steel.
Weighing machines (and scales).
Weighing machines, portable platform.

With the increase in the custom duties in France, with the low rate of exchange between both France and England and the United States, and with the high freight rates, there will be some difficulty in making sales to both those countries on account of the net cost of the delivered materials. In fact the industries of France have brought great pressure to bear on the government to protect them properly in the manufacture of railway materials. Regardless of the fact that the American government is willing to accept a very low figure for the railway material it now has in France, it is believed the Fench commercial interests will strongly oppose the purchase of this material.

The removal of the restrictions, however, has given American manufacturers a basis on which to work which will be far more satisfactory than under the licensing system. In the matter of deliveries the United States has the advantage and undoubtedly more sales will be made in the future than since the signing of the armistice.

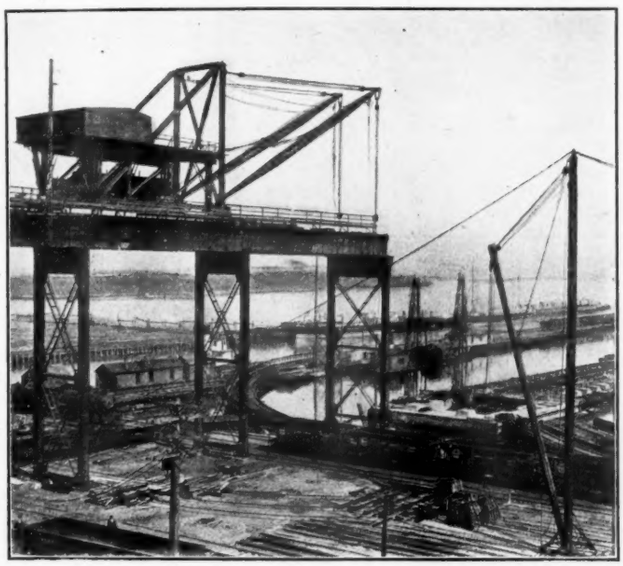
According to the "Popolo Romano" the "gravest danger threatens Italy at this time" as a result of the British coal crisis, says a press despatch from Rome. The only hope in the situation, says the newspaper, lies in American coal, though the problem of sufficient shipping to carry it is a difficult one at the present moment. Little hope is held out that coal can be received from the Saar Valley and the Teschen district. "In a few weeks," the "Popolo Romano" says, "our coal stocks may be completely depleted. As Italy imports 7,000,000 tons of coal out of the 12,000,000 tons consumed each year the prospect for the winter is alarming."

Duluth Ore Dock is the Largest in the World

Description of Record Structure Completed This Spring for the Duluth, Missabe & Northern

By W. H. Hoyt
Assistant Chief Engineer, Duluth, Missabe & Northern

THE LARGEST ORE SHIPPING DOCK in the world is the new dock of the Duluth, Missabe & Northern, on Duluth-Superior harbor, which was placed in operation on May 1 of this year. It has a length of 2,438 ft., sufficient to dock two of the world's largest ships, the Bismarck and the Leviathan, end for end on either side. The



Double Boom Traveler Erecting the Steel Work

deck is 84 ft. above water with electric light masts reaching to 120 ft. above water.

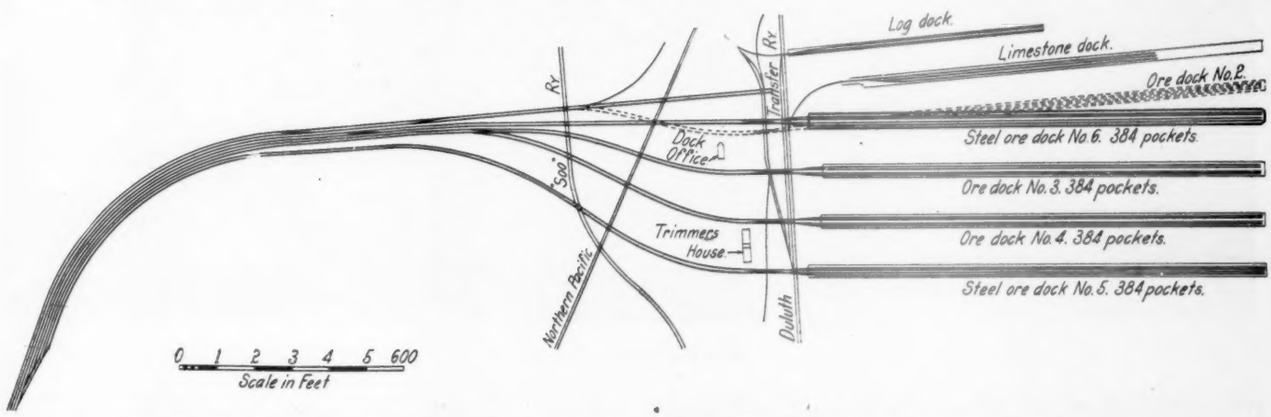
Construction work on this pier was started in August, 1916, by tearing down an old wooden ore dock which occupied a large part of the site of the new dock. The wrecking of this old structure and the pulling of 8,255 piles from 50 to 75 ft. in length was a big job in itself. After removing the timber superstructure and pile foundation, three rock-filled timber cribs were removed with powerful dredges and derrick scows.

The first shipments of new piling were received on December 2, 1916, and pile driving started on December 23. Four drop hammer drivers, with 60-ft. leads, were used on this work, and a total of 971,014 lin. ft., or over 183 miles, of timber piling was driven by July 28, 1917. During this time two other machines drove 174,230 lin. ft. of 12-in. 43-lb. United States Steel sheet piling, in 38-ft. lengths. The timber foundation piles run from 50 to 85 ft. in length and receive loadings not exceeding 20 tons per pile.

The drivers used were swing machines carried on platforms supported by piling driven ahead, followed by the steel sheet pile drivers and then by the outside fender driving machines.

The pile cut off was 9 in. above low water datum, which is amout average water level. About 180,000 ft. b. m. fir timber was used for caps. Tie rods, 1¼ in. in diameter, running across the dock every 12 ft., serve to anchor the tops of the sheet piling in place. The entire dock foundation, being surrounded by steel sheet piling, was pumped full of sand, of which 33,000 cu. yds. were taken from slips alongside and 49,000 cu. yds. was brought in by scows. This sand was carefully leveled off at low water datum and served as a support for the concrete foundation slab, leaving the piles projecting 9 in. in the concrete.

The foundation of the dock is a reinforced concrete slab 2,438 ft. long, 69 ft. wide and 6 ft. deep, with openings along the center line which were filled with sand. The concrete was composed of a 1:3:5 mixture of Universal Portland cement, Lake Superior sand and crushed run trap rock, taking everything through a 3½-in. screen. The reinforcement consisted of a layer of 1-in. plain round steel rods on 6-in. centers, crosswise of the dock and a layer of ¾-in. rods on 12-in. centers lengthwise of the dock, placed near the bottom of the slab. A total of 884,410 lbs. of reinforcing steel and 171,320 lbs. of tie rods were used in this part of the work.



Map Showing Relation of New Dock No. 6 to the Other Docks and to the Approach Development

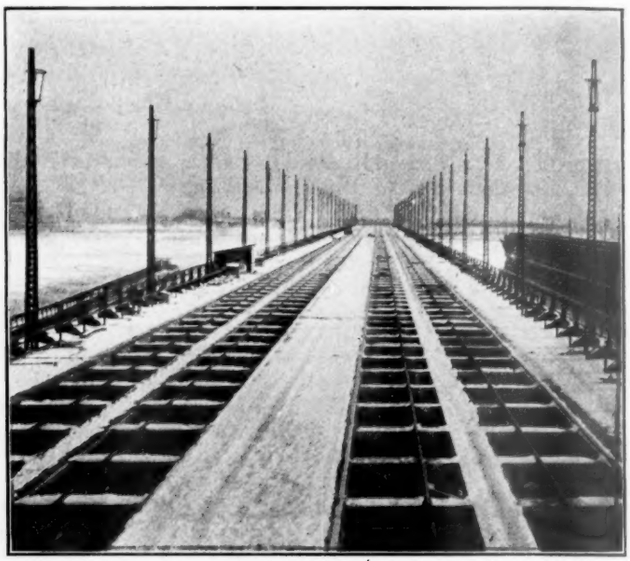
Recesses were left in this concrete slab at proper points to allow the placing of column anchor bolts and the pouring

of the column footing pedestals as one block. This avoided the horizontal joint line at the top of the slab and permitted the simple handling of anchor bolts. Expansion joints are provided at cross sections 144 ft. apart in the foundation slab as well as in the superstructure. An oak wale strip 12 in. by 16 in. is embedded in the face wall of the foundation, set into the concrete 8 in. and held in place by anchor bolts every 6 ft. A total of 28,698 cu. yds. of concrete was placed in this work between July 7 and November 8, 1917.

A 1¼-in. water pipe was laid the whole length of the dock foundation to supply drinking water to bubbling fountains on

Concrete Deck Slabs in the Storage Yard

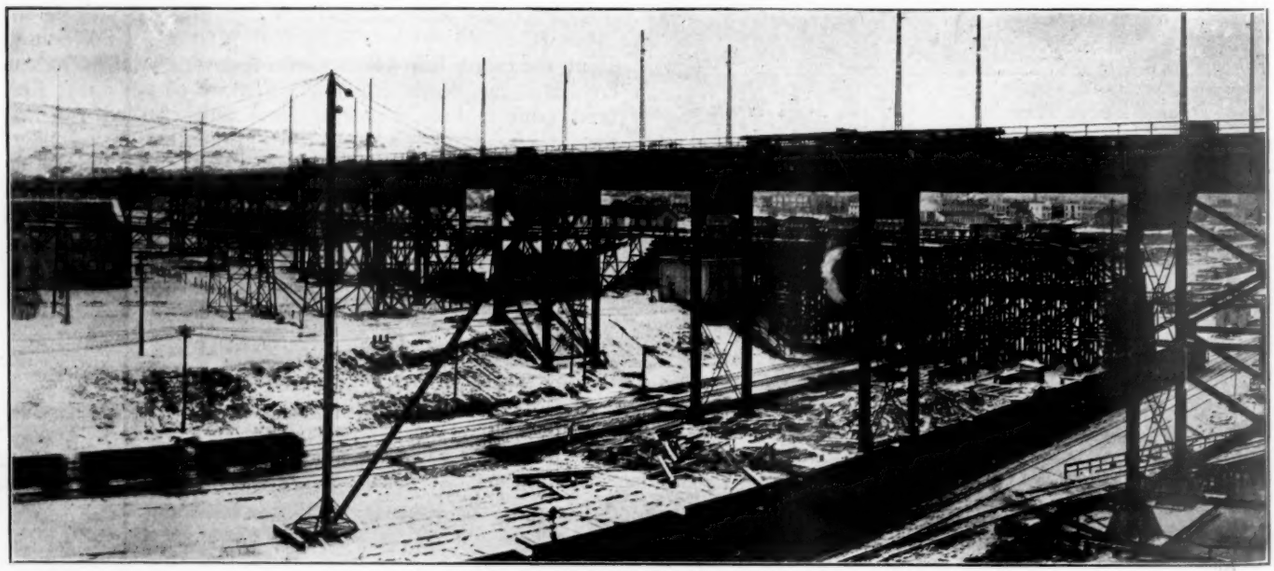
the deck. This pipe was laid 3 ft. 9 in. below the top along the center and covered with sand, thus ensuring a cool supply during the summer months. The pipe was laid with a 5 in. wide, out to out of concrete, and carries four tracks the entire length. Seven lines of walks furnish ample working room and safety for employees. The elevation of rails and walks was set to leave no troublesome flangeway openings to



View of the Deck of the Dock

require constant cleaning. The entire dock and approach are designed to carry the heaviest locomotives of the Duluth, Missabe & Northern, a 304-ton Mallet type and a 266-ton Santa Fe type with 55,000-lb. axle loads.

The superstructure has a structural steel frame with concrete partition walls, pocket walls and sidewalk slabs. The



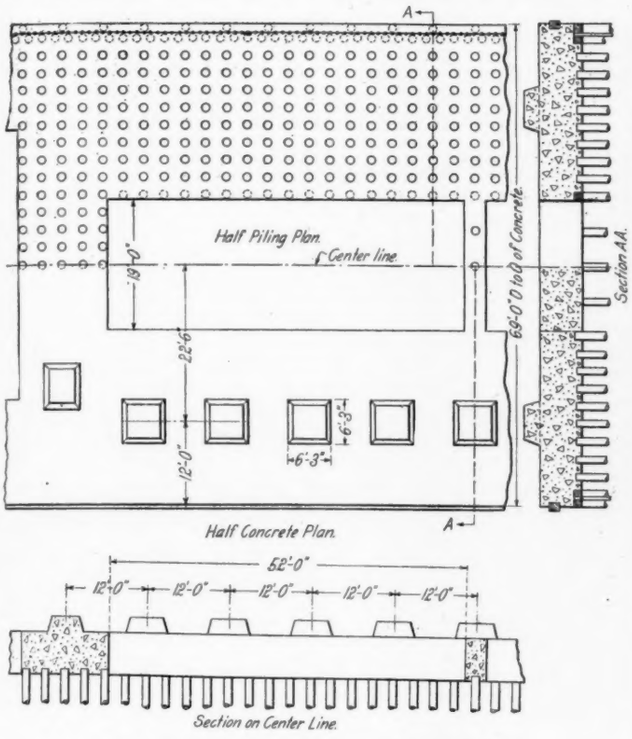
The Approach Viaduct

grade and drain outlets in order that it might be drained to prevent freezing in winter when the dock is not in use.

The Superstructure

The superstructure provides for 384 ore pockets, 12 ft. center to center, with 6,540 cu. ft. capacity each. Eight standard 50-ton ore cars can be dumped into each pocket without trimming, thus providing a storage capacity of 3,072 cars, or 153,600 tons. The top of the dock is 76 ft. fronts are of plate steel, supported between pocket walls by I-beam wales and held against the walls by tie bolts. The entire pocket structure is carried by two lines of steel columns spaced 12 ft. apart, arranged in pairs to form bents under each transverse wall. Each column is designed to carry 1,500,000 lbs. The columns consist of three 115-lb. I-beams, stayed with batten plates. The partition walls and the loads from the pockets are carried to the columns by two plate girders forming an A-frame, and the pocket bottom slab rests

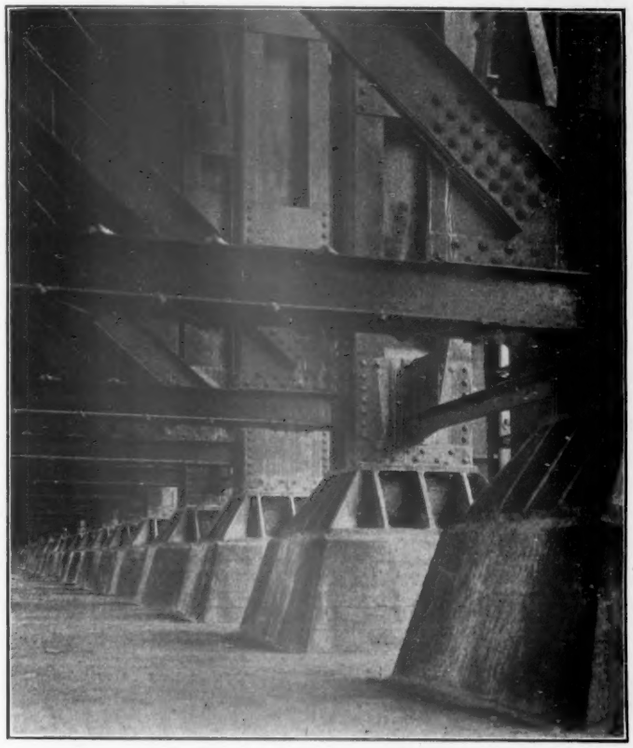
on transverse I-beams that frame into these girders. Reinforcement is put into the floor slab, both for slab action



Part Plan and Sections of the Footing

across the supporting beams and for shear between the slab and the side walls, tending to cause the slab to slide out of the pocket. The column bents are amply wind and sway braced to prevent distortion. Special care was taken to provide effective expansion joints at intervals of 144 ft. in the length of the dock.

The superstructure concrete was made of carefully graded material in proportions by volume of one part cement, three parts sand, five parts of chushed stone, and one quarter part hydrated lime. The hydrated lime was added to secure easy running concrete around and under the reinforcing bars and to assist in water-proofing the mass. The surface of the concrete after removing the forms was very even and required a minimum of hand pointing. Plain round bars, suitably bent, were used to reinforce the bottoms of the ore pockets.

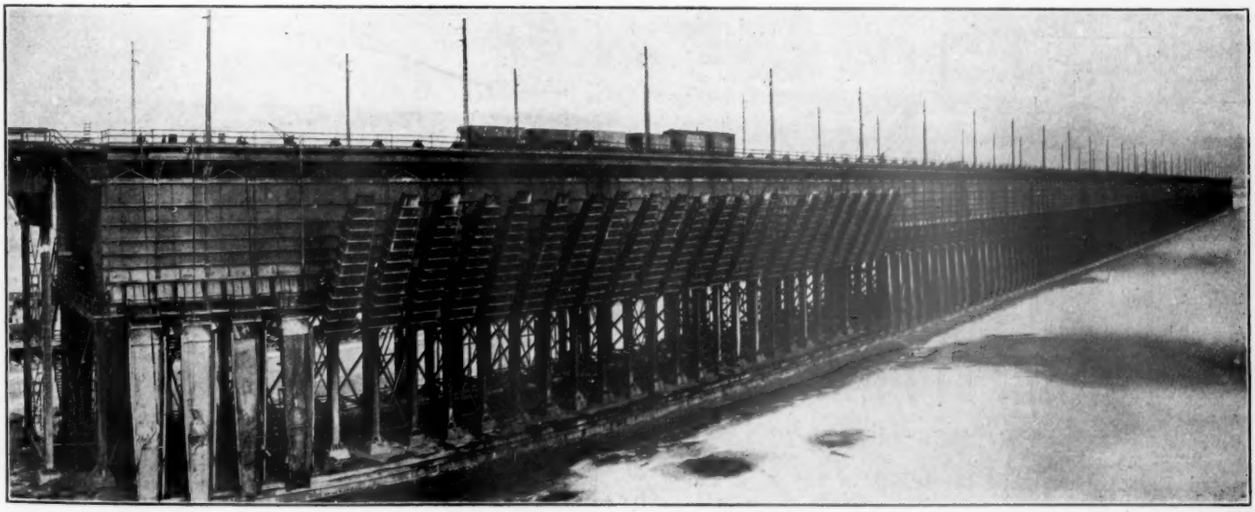


Typical Column Bases and Pedestals

The top deck was reinforced with American Steel & Wire Company triangle mesh.

Concrete bumping blocks properly bonded into the steel and concrete floor finish the outer ends of each track. All stairways are of steel and concrete. Underneath the ore pockets a 4-ft. concrete walk, elevated somewhat above the foundation slab, was placed the full length of the dock. This is to provide a dry walk above the sand and water when this deck is flooded while the ballast water is being pumped out of the ore boats.

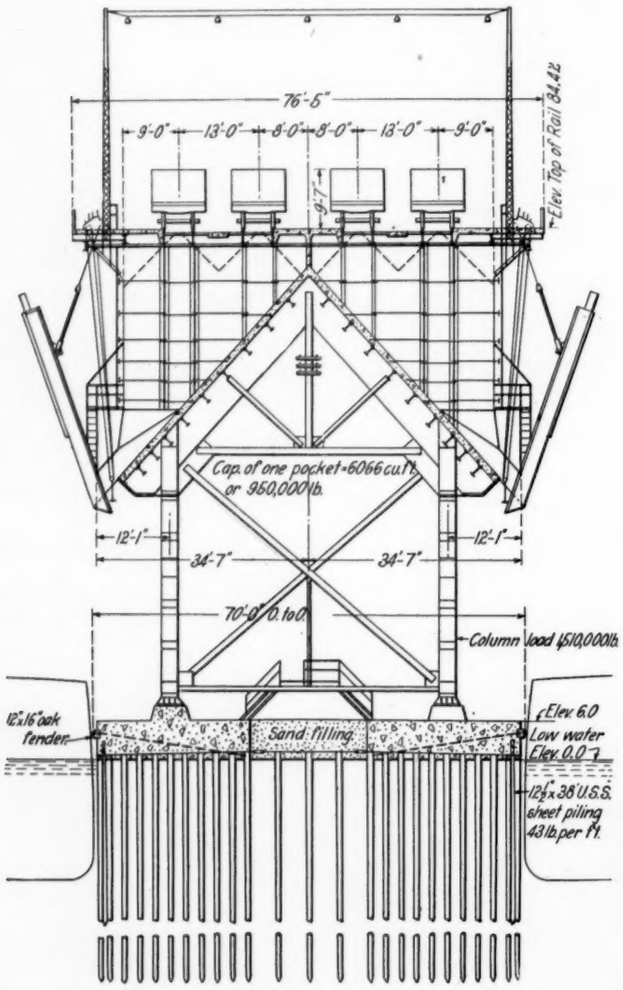
The ore chutes are of the usual type, but heavier, and are raised and lowered by hoists designed and supplied by the



View of the Completed Dock

Whiting Foundry & Equipment Company. These hoists are driven by power from clutches on a line shaft geared to General Electric a. c. motors, one motor operating 12 spouts and doors. The ore pocket doors are the Dickerson type, made of steel plates and frame with two lifting cables wound on drums built into the chute hoists. This makes it possible to raise and lower the doors by power from the deck of the dock. The latching and unlatching of doors is controlled by a lever and connections from the deck. This leaves only the punching and cleaning of ore from the lower parts of the pockets to be done by men on the lower platform.

The deck is lighted by a string of five 100-watt lamps, equipped with Benjamin deep-cone reflectors suspended from a 3/8-in. galvanized strand span wire stretched across the deck from steel poles 35 ft. high. These cross spans are



Typical Cross Section of the Ore Dock

spaced 72 ft. apart along the length of the dock and give a distributed light which has proven very satisfactory. All lighting on the approach is of the same overhead type. Other lamps on the dock light the interior of the pockets, the doors and the boat decks. All wiring, motors and switches are housed in steel conduits and steel boxes. Toilet and drinking facilities are constructed at both ends of the deck and two bubbling fountains are installed at third points between the ends.

The dock has a two-track steel approach trestle 3,087 ft. long, beyond which is also 400 ft. of elevated embankment carried between parallel reinforced concrete retaining walls 24 ft. apart and from 8 to 15 ft. high, held together by reinforced tie walls at intervals of 20 ft. The long steel approach has plumb steel columns resting on concrete pedestals and piles, standard plate girders and a concrete trough deck made of pre-cast reinforced slabs. The longest girder span is 80 ft. 6 in., with 30-ft. spans for the tower bents. Stone ballast and standard track ties are used. On the portion of the approach where the track area is required to be wider to meet the four tracks on the dock the deck slab was built in place.

As a record structure of its kind, some of the quantities of materials used in the construction are of interest and are listed below:

1,067,971 lin. ft. of timber piling, 50 ft. to 85 ft. in length.
174,230 lin. ft. of 12-in., 43-lb. U. S. steel sheet piling.
162,570 sq. ft. of triangle mesh reinforcement.
59,846 cu. yd. concrete in dock and approach.
29,009 tons of steel.

This amount of steel would require approximately 60,000 tons of iron ore, which could be placed in less than one half of the dock and loaded into boats in less than 30 min. time.

The contractors on the work included the Barnett & Record Company, for the foundation; the American Bridge Company, for the steel work; the Stack Construction Company, for the superstructure concrete, and the Whiting Foundry & Equipment Company, for the machinery. All electrical work was installed by the railway.

The following prices were paid on the work:

Foundation piling, let in 1916, furnished for 20 cents per lin. ft.
Foundation piling, let in 1916, driven for 3¾ cents per lin. ft.
Furnishing and placing fir timber in foundations, $42 per M ft. b. m.
Furnishing and placing oak wale timbers, $65 per M ft. b. m.
Driving steel sheet piling, 38-ft. lengths, $1.60 each.
Foundation concrete 1:3:5 mixture (1916 price), $5.51 per cu. yd.
Superstructure concrete 1:3:5 mixture (1917 price), $9.70 per cu. yd.

The personnel concerned with the designing and erection of the dock included the following officers of the Duluth, Missabe & Northern: W. H. Hoyt, assistant chief engineer; W. E. Hawley, office engineer; A. M. Frazee, electrical engineer; F. C. Baluss, engineer of bridges and buildings, and F. N. Graham, engineer of construction.

From the Hartford Daily Courant

Time for Uncle Sam to Get Out and Get Under

Motive Power Under Government Control*

Condition of Equipment and the Means Employed by the Railroad Administration to Improve It

By George N. De Guire

General Supervisor Equipment, United States Railroad Administration

THERE NEVER HAS BEEN a time in the history of your organization when delegates have been called upon to handle matters of as great importance as will be taken up during your present session.

With the country just entering upon a reconstruction period, your organization, if they are to follow the splendid record they have made in the past, will take an active part in the reconstruction problem and as the action of your brotherhood will depend on the attitude this convention assumes towards those matters, it is essential that you weigh carefully every subject that may be brought up so as to fully protect the interests of the men you represent and to assist your country in planning the various industries on a peaceful and successful basis.

Every man in locomotive service has a deep interest in the condition of the equipment he is called upon to operate, and therefore I am going to outline some of the things the Railroad Administration has accomplished from a mechanical viewpoint. In the past 18 months greater concessions have been granted to locomotive engineers and firemen in the way of labor saving devices than have been granted in all the period of time that the railroads were under private control.

When the mechanical department of the Railroad Administration was organized, the director general selected as an officer to be placed in charge of this department, a man who has long held membership in your brotherhood. That person, Frank McManamy, was chosen as assistant director, Division of Operation, mechanical department. In the past 18 months during which Mr. McManamy has held this position, he has continually advocated the application of labor saving and safety devices and because of his extensive railroad training, which started on the deck of a locomotive as a fireman, he has been in a position to show the necessity for any action that has been taken in this respect.

It is not possible to state what the Railroad Administration has accomplished without taking into consideration the conditions which existed at and prior to the time the Government assumed control of the railroads. Therefore, in order to fully comprehend the difficulties encountered by the Railroad Administration and appreciate what has been accomplished, a brief outline of some of the conditions found in motive power and car departments will be given.

The Federal government assumed control of the railroads not because it was desirous of adding to the enormous task it already had on hand, but was forced to do so as a war measure, because the railroad machine had to an alarming extent ceased to function, and in the emergency which confronted the nation it was essential that the railroads should function at their highest degree of efficiency.

The statement has been made and is generally accepted that the principal cause for the railroads failing to function was due to car and locomotive shortage, and while this correctly represents the situation so far as the shipper was concerned, from a standpoint of railroad operation such a condition did not exist.

When a railroad, or a number of railroads are congested with cars and when the shops and roundhouses in any section of the country are blocked with locomotives undergoing or awaiting repairs, in so far as these railroads are concerned there can be no shortage of cars or locomotives. These conditions existed on every railroad which was congested with traffic at the time the Railroad Administration assumed control, therefore, congestion was not primarily due to shortage of cars or locomotives, but to the inability or failure to use to their maximum efficiency, the cars and locomotives at hand.

It was not possible, at the time the railroads were taken over, to say to what extent the condition of locomotives and cars was responsible for the situation which existed. As the Railroad Administration at that time had no mechanical department organized to check up shop practices and the handling of equipment at terminals and advice relative to outlining plans for improvement, the Interstate Commerce Commission was asked to assist in obtaining accurate information relative to the general situation.

The records of the Commission contained much valuable data with respect to general conditions throughout the country and the inspection forces of the Commission were assigned to various congested terminals, particularly throughout the East and Middle West, to investigate and make daily reports of the actual conditions of locomotives and cars and of train movements.

These reports showed that a serious condition existed because of the number of bad order cars at various terminals and also because of the generally defective condition of motive power. This condition, together with overcrowded and inadequate shops and roundhouses, had resulted in trains being held at terminals on account of shortage of efficient motive power, and also had seriously slowed up movement on the road, often to the extent of blocking several divisions.

Condition of Shops and Roundhouses

Prompt handling of locomotives was seriously hampered by the condition of roundhouses and the lack of facilities, at many points, to make running repairs to large locomotives. Roundhouses built 20 years or more ago, for locomotives in service at that time, were not large enough to take care of those in use at the present time, consequently repairs had to be made out of doors or at open roundhouses often with the temperature below zero.

Similar conditions existed in the shops at many points for it was found that there had been no improvements made for many years and consequently there were no crane facilities or proper tools with which to handle and make repairs to modern power promptly. This resulted in locomotives being held out of service for an excessive period of time to receive classified repairs.

The immediate remedy for these conditions was not so much the building of new locomotives and cars as the proper maintenance of locomotives and cars that were in service and more prompt movement of trains.

At a time when the various war industries were clamoring for skilled mechanics at almost any rate of pay, and the supply had been substantially decreased by the selective draft, the problem of improving the condition of locomotives and cars in the midst of exceptionally severe winter weather, was an extremely difficult one.

A survey of the situation indicated that shop facilities were

*From an address at the twenty-eighth annual convention of the Brotherhood of Locomotive Enginemen and Firemen recently held in Denver, Colo.

sufficient if efficiently used, therefore, about one of the first acts of the Railroad Administration was to nationalize the railroad shop facilities so that locomotives could be assigned to shops where repairs could be made regardless of ownership.

Methods for Improving Conditions

Increasing the facilities and forces under war conditions was clearly impossible and the only practical means of improving equipment conditions was the adoption of some plan whereby existing facilities and forces could be made to produce greater results.

The first step in this direction was to call on the representatives of the organized railroad employees to agree to a modification of their agreements and contracts with the various railroad companies relative to hours of labor and the rules governing the promotion of apprentices and helpers to the rank of mechanic.

This was agreed to by the employees' organizations, and on February 14, 1918, a letter directing the manner in which this should be done was sent by the Director General to the representatives of the employees and to the various railroads. Immediate steps were taken to increase the shop hours of men working in locomotive repair shops and roundhouses to 70 per week where the condition of equipment required it.

The average increase in locomotive shop hours for the entire country amounted to about 16 per cent, and the effect immediately became apparent by the increased number of locomotives repaired per week in comparison with the most accurate records available for the corresponding week of the preceding year.

This increase in shop hours applied to roads where locomotives were in good condition and shop facilities ample, as well as to roads which were not so favorably situated. This permitted a comprehensive program of nationalization of railroad shop facilities over the entire country to be carried out and locomotives from roads where shop facilities were not sufficient, and motive power in bad condition, to be sent to shops on other lines for repairs. This distribution of locomotives was so arranged as to reduce, in many instances, the distance travelled to the repair shops, therefore, the cost of transporting locomotives to the shops was no greater and all the shops under this plan were kept working to their maximum capacity with a full force.

The plan of considering the condition of equipment as a whole and taking steps to improve it by uniformly increasing shop hours on all railroads in the country and utilizing to their full capacity the facilities of all shops, which could only be done under federal control, is really what improved the condition of the locomotives and cars. The result of this was that not only was the existing congestion of traffic cleared up, but trains were moved by locomotives in good repair, with promptness, and with reasonable assurance that they would reach their destination without delay.

The result of the policy of nationalizing railroad shop facilities made it possible to thoroughly overhaul and in some cases to practically rebuild at other line shops, 3,493 locomotives for railroads which lacked sufficient shop space and shop organization, thus improving the general situation without detriment to the railroads that furnished this help. In addition to this, during the period January 1, 1918, to April 30, 1919, there were 310 new locomotives constructed in various railroad shops under federal control. At the present time, due to this method of handling repairs to locomotives, we have been able to put in first class condition and place in storage, for service when business improves, over 5,000 locomotives.

Investigation was also made of the facilities of the different locomotive builders with a view to having locomotives repaired by them. It was found, however, that this could not be done to any material extent without disarranging their schedule of new work both of domestic and foreign locomotives, and in view of the need for both, this was not considered advisable. Both the Baldwin Locomotive Works and the American Locomotive Company did endeavor to make use of surplus facilities to repair what locomotives they could without interfering with their output of new locomotives.

Illustrative of the improvement in motive power and the changed conditions in railroad shops, is the fact that it was possible to grant the request of the Baldwin Locomotive Works made on September 13, 1918, for assistance in machining locomotive frames, driving boxes, rods and other parts, thus facilitating the construction of locomotives for the use of our army in France, and this work was continued in various railroad shops until the armistice was signed.

The increased working hours in railroad shops under the instructions issued on February 14, 1918, were continued until after the signing of the armistice, and without this loyal support from the employees the increased number of locomotives repaired during this period and the assistance rendered locomotive builders would not have been possible. On the signing of the armistice, shop hours were reduced to nine per day, effective November 25, and to eight hours per day, effective December 9.

Standardized Locomotives

In addition to the vigorous action which had been taken to improve the condition of existing equipment, the necessity of adding to the available stock was recognized and designs were worked out for standardized locomotives and orders placed for their construction.

The director general realized the necessity for new power, which to some extent had been neglected by the railroad companies, and decided that all new power would be built to standard design. S. M. Vauclain, senior vice-president of the Baldwin Locomotive Works, and who at this time was chairman of the Committee on Production of the Council of National Defense, was requested to assemble a committee composed of practical experienced locomotive builders, to select standard locomotive types, stipulating that Mr. Vauclain was to act as chairman of this committee. The personnel of this committee consisted of S. M. Vauclain, senior vice-president, Baldwin Locomotive Works, chairman (representing Committee on Production, Council of National Defense); Grafton Greenough, vice-president, Baldwin Locomotive Works; Andrew Fletcher, president; Charles M. Muchnic, vice-president; J. D. Sawyer, vice-president, and J. B. Ennis, vice-president and chief mechanical engineer, American Locomotive Company; John E. Dixon, vice-president and W. E. Woodard, vice-president and mechanical engineer, Lima Locomotive Works, Inc.

Instructions were issued to this committee to prepare specifications for not more than 12 types of standard locomotives with particular consideration given to creating standards of parts subject to wear and replacement, so that they may, as far as efficiency and economy would permit, be made standard for as many types as possible, and at the same time permit the entry of better and improved parts in the future. This committee recommended twelve types of standard locomotives, and specifications were prepared and orders were placed for 1844 locomotives of standardized types and 86 locomotives are on order, the type of which has not been decided on.

In addition to this committee it was decided by the director general that a committee made up of mechanical representatives of various railroads be assembled to consider these general dimensions and specifications, and to work out the details, meeting the various equipment and patterns, and the maintenance, fuel, water and other operating factors, as well as give due consideration to various items, usually termed specialties, which have already been developed and practi-

cally made standard practices, or which may be in process of development and in line with conditions and requirements of the future. As locomotives have a probable life of at least twenty-five years, they should be made as modern and as practicable as possible. The Committee was further instructed to take into consideration greater expediency in movement on the road and in terminals, greater comfort for engineers and firemen, and all others concerned, the most effective and economical operating resources, and particularly greater safety, the elimination of arduous manual labor, to provide for superheating, for the best and most perfect combustion of fuel burned in solid or liquid form, the utilization of all possible waste heat and reduced liability for setting-out fires. In other words, the locomotive to be brought to the same standard of efficient operation as the modern stationary power plant.

In the interest of safety, there has been provided on each standardized locomotive which has been built, two water glasses, so that each might be a check on the other, as well as permit the men on the left side of the locomotive to observe the height of the water in the boiler. To insure more accurate registering of water in the gage cocks, gage cock water columns have been provided, and the gage cock screwed into the water column rather than into the boiler to avoid the irregularity and unreliability which is sometimes experienced where gage cocks are screwed directly into the boiler. In carrying out this practice, we had in mind the recommendations of the Bureau of Locomotive Inspection of the Interstate Commerce Commission, which has devoted a great deal of time and thought to this subject.

For the protection of the men against bursting flues, bursting arch tubes, etc., pneumatic firedoors have been applied to all locomotives built by the Administration. These locomotives are provided with a power reverse gear by which the cut-off may be changed without any risk of accident to the man handling the reverse lever. Pneumatic bell ringers are applied to each locomotive, and the grates on each are provided with power grate shakers. Much thought also was given to the location of cab lights. Drawbars have been provided which are a guarantee against the locomotive and tender becoming uncoupled. Radial buffers insure better riding qualities by not only preventing slack between the tank and the engine, but also guard against derailment of the tenders, particularly in backing trains around curves or in the sidings. Double strength pipe and flexible joints have been used instead of hose connections for the train brake and signal line, as well as for the train heating lines on passenger locomotives.

In the further interest of safety all pipes carrying boiler pressure are placed outside the cab, the only exceptions being the short lengths of brass pipe which connect the water column for the gage cocks to the boiler, the steam gage syphon and the steam pipe to the lubricator. Injector, steam pipes, air pump steam pipes, steam pipes to blowers, stokers, train heater and headlight generator are all located outside the cab. While some work has been done along this line by one or two roads, the locomotives constructed on Administration order are the first on which this was generally carried out.

Much consideration was also given to the convenient location of the appliances manipulated by the engineer and the fireman. The reverse lever, injector, throttle, brake valves, sanders and bell ringer, are all within the engineer's reach while sitting on the seat box. The steam and air gages and water glasses are so located that they may be observed by the engineer without losing sight of the track. In all of these things the locations have been made uniform so that the man who yesterday ran the Mikado and who today is called to run the Pacific or the Mountain, will find each of these things in the same relative position on each class of locomotive. I know that you can appreciate very much better than I can tell you, just what this means for comfort and convenience. One other thing in connection with reducing the labor of the fireman is the application of automatic stokers to these locomotives.

In considering the question of the size of locomotives to which stokers should be applied, it was thought that the limit of coal which could be handled by a man with a shovel on the firing deck of a locomotive, was approximately 4,000 lb. per hour, and locomotives which consumed this amount or more are provided with stokers.

Freight locomotives with a tractive power of 54,700 lb. and over, (light Mikados) and in passenger service, those with a tractive power of 43,900 lb., (heavy Pacifics) have been provided with stokers. Those locomotives on which, by reason of coal consumption, it was felt that the application of stokers was not desirable, have been equipped with coal pushers of a type which may be operated while the locomotive is in motion so as to bring the coal to a point where the fireman can reach it with a shovel easily.

No matter how good or how perfect a device may be when new, some measure of maintenance is required, and this maintenance can not be done either economically or intelligently if those charged with this duty lack information. I urge, therefore, that each of you who have to do with the making out of Form 2 of the Interstate Commerce Commission, daily locomotive inspection report, which is filled out at the conclusion of each trip or day's work, give explicit information as to the repairs which are necessary in order to maintain the locomotive and its accessories in a safe condition for service.

There are three other matters upon which the mechanical department of the Railroad Administration has taken action, and in which I am sure you will be interested.

First: The proper lubrication of locomotives.

Second: Seeing that locomotives are kept in proper repair.

Third: Enforcement of the various laws that have been passed by Congress from time to time compelling the railroads to equip cars and locomotives with safety appliances and to see that they are maintained in proper condition.

Shortly after the government assumed control of the railroads, many reports reached us which indicated that locomotives were not properly lubricated, which, in addition to increasing the coal consumption and consequently the work of the firemen, was also causing excessive wear on cylinders, cylinder packing, valves and valve chambers, as well as on piston and valve stem packing.

To correct this condition, Mechanical Department Circular 6 was issued which provides that all lubricators shall be filled to capacity before locomotives leave terminals and in addition thereto sufficient oil should be carried on the locomotive to provide against any emergency that might arise, and I am pleased to state that the issuance of this circular has resulted in a great improvement.

The Railroad Administration, recognizing that in the interest of safe and efficient operation, locomotives should be repaired before being offered for service, issued Mechanical Department Circular 3, which provides, among other things, that road foremen of engines or traveling engineers, or men with any other title who perform similar duties, will be required to carefully supervise the locomotives in service to see that they meet the federal requirements and that they are in a condition to render efficient and economical service. If not, they should order the necessary repairs to be made and such orders will be observed as if issued by Federal inspectors of locomotives, and it further provides that locomotives that are in violation of the Federal laws or are not in condition to make a successful trip, should be repaired before being offered for service.

The President of the United States, realizing that laws on this subject were essential and necessary, promised the rep-

resentative of your brotherhood to protect the Bureau of Safety and the Bureau of Locomotive Inspection of the Interstate Commerce Commission, from interference when the government assumed control of the roads. In carrying out the policy outlined by the President, the director general issued General Orders 8 and 46, which outline a plan for the enforcement of various Federal laws, rules and instructions of the Interstate Commerce Commission on such matters.

Under General Order 46, Frank McManamy was placed in charge, so far as the Railroad Administration was concerned, of seeing that these laws were complied with. Reports received from the bureaus of the Interstate Commerce Commission indicate that these laws are being complied with in a manner that is gratifying to them, and in your national legislative representative's report, which has been presented to the delegates of this convention, you will note Mr. McManamy states,—"On December 26, 1917, the President took over the railroads and proclaimed that our safety laws would be protected and this has been religiously lived up to since that time."

I desire to thank you for having had an opportunity to address you at this time and I trust that your deliberations will result in the passage of laws which will be of great good to your membership. It is my sincere hope that when the history of the World war is written, proper emphasis will be placed on the great work which the railroad employees have performed in connection with the winning of the war.

Classification of Technical Employees in the Northwestern Region

A DEFINITE STEP toward the classification of technical employees of the engineering, mechanical, land and valuation departments was recently made in the Northwestern region through the issuance of a communication by R. H. Aishton, regional director, to the federal managers of railways in the Northwestern region for their information and guidance. This classification was prepared by a committee consisting of H. E. Stevens, chief engineer of the Northern Pacific, C. F. Loweth, chief engineer of the Chicago, Milwaukee & St. Paul, and A. Montzheimer, chief engineer on the Elgin, Joliet & Eastern, and is the result of a detailed study of the technical service of the roads in this region. This schedule is of particular interest because of the detail in which the duties, responsibilities, degree of technical training and extent of experience are treated in defining each classification. The statement covers positions in the engineering, mechanical, land and valuation departments below the grades of assistant engineer and chief draftsman, and the definition of each grade includes a salary rating giving the maximum and minimum limits of salary comparable to the character of services rendered in each grade of position.

The classification, which is given in detail below, is prefixed by an explanation or statement of general principles involved in its application. In this explanation attention is directed to the difficulties of fitting a classification definitely to all existing organizations, for which reason considerable range of salaries is given to allow for such irregularities. Along this line attention is given to the fact that a large organization may need a more expanded classification, while a small road may require an even smaller number of grades than those given in the schedule. The purpose of the classification is to grade each man in accordance with his duties and responsibilities, familiarity with standard practices, and length of service.

Authority is given to apply this classification as effective July 1, 1919.

No overtime is to be allowed men covered in this classification.

SCHEDULE

DRAFTSMEN, CLASS 1, $200-225

On general or special duty, requiring special knowledge, training and experience, and a special degree of initiative and originality, thoroughly competent, engaged regularly in the design and general direction of the design of large and difficult work on yards and terminals, track details, etc., or steel, concrete and timber bridges and structures, or special buildings, etc., or locomotives, cars, special machinery, mechanical and electrical power plants, etc.

DRAFTSMEN, CLASS 2, $175-190

On general or special duty, requiring special knowledge or training and experience and the use of initiative and originality. Engaged in the general designing and the direction of detailing of plans of yards and terminals, track details, etc., or steel, concrete, or timber bridges and structures, or special buildings, power plants, etc., or locomotives, cars, special machinery, or signals and signal apparatus, or land, right-of-way and valuation maps and profiles from field notes and records.

DRAFTSMEN, CLASS 3, $150-165

On general or subordinate duty, requiring special knowledge or training, experience and initiative, generally engaged in the designing and detailing of work in accordance with standard practices, and the direction of work of a minor character on right-of-way maps, mileage records, or steel, concrete and timber bridges and structures, or locomotives, cars, special machinery, mechanical and electrical power plants, or signals and signal apparatus, or land, right-of-way and valuation maps and profiles from field notes and records.

DRAFTSMEN, CLASS 4, $125-140

On subordinate duty requiring a certain amount of knowledge, training or experience, and engaged generally in detailing, compiling and recording general engineering plans, land and right-of-way maps, or valuation maps and profiles, or records of bridges, buildings, locomotives, cars or signals.

TRACERS, $100-120

On subordinate duty requiring a certain amount of experience or knowledge of drafting. Capable of doing neat, accurate and rapid work.

ENGINEERING INSPECTORS, CLASS 1, $175-185

On general or special duty requiring special knowledge, training and experience and the use of initiative. Capable of directing and supervising the inspection of extensive engineering construction and all classes of construction materials.

ENGINEERING INSPECTORS, CLASS 2, $150-165

On general duty requiring special knowledge or training and experience and the use of initiative. Capable of supervising the inspection of average engineering construction and materials.

ENGINEERING INSPECTORS, CLASS 3, $125-140

On subordinate duty requiring a certain amount of knowledge or training and experience. Capable of inspecting minor construction work and materials.

INSTRUMENTMEN, CLASS 1, $180-200

On general or special duty, requiring special knowledge, training and experience and the use of initiative. Capable of directing a field party, and responsible for technical field work of a complicated and difficult nature, and platting the field notes and data.

INSTRUMENTMEN, CLASS 2, $150-170

On general or special duty, requiring special knowledge, training and experience and the use of initiative. Capable or directing a field party, making personal investigation of ordinary field work, and platting the field notes and data.

RODMEN, CLASS 1, $120-130

On subordinate duty with knowledge, training and experience. Capable of doing ordinary field work without supervision or more difficult field work with supervision, and platting the field notes and data.

RODMEN, CLASS 2, $100-115

On subordinate duty with a certain amount of knowledge of field work, but not required to use transit or level.

CHAINMEN OR TRAINMEN, $90-100

On subordinate duty, preferably with a certain amount of knowledge or experience in field work.

There Must Be an End.—It is not a railroad man, but a member of the Interstate Commerce Commission, Mr. Clark, who has told the House Committee that the raising of freight rates is inevitable. Time was when the Commission conceived it to be their duty to oppose every application of the railroads for higher rates. Mr. Clark believes the high wages will have to be maintained. The suggestion that the Commission be given power to fix wages he earnestly repelled. Not for the Commission the job of cutting wages to meet income! There remains only the universal last resort—to make up the deficit out of the pockets of the public. This process is now world-wide. But there must be an end to it some day. English miners, fearing the effect of public feeling regarding their pleas for shorter hours and higher wages, have asked the Government to suspend the order until they have had a chance to show that it may not be necessary. "Strike and the world strikes with you; work and you work alone."—*New York Evening Post.*

Railroad Hearings Before House Committee

Executives Submit Outline of Principles—Ask That Roads Be Made Self-Sustaining—Other Testimony

WASHINGTON, D. C.

THOMAS DE WITT CUYLER, chairman of the association of Railway Executives, appearing before the House Committee on interstate and foreign commerce, on August 20, on behalf of 94 per cent of the railroad mileage of the country, presented the following outline of principles which the carriers believe should be incorporated in legislation for the return of the roads to private operation:

1. Approval by public authorities of rates that will enable the railroads of the country to be self-sustaining, and to command the new capital needed year by year for expansion of railroad facilities; but with no guaranty of income by the government.

The growth of population and industry now requires the annual investment of from $700,000,000 to $1,000,000,000 of new capital.

2. Exclusive regulation of rates by the Interstate Commerce Commission with the aid of regional sub-commissions, and with a definite direction by Congress to the Interstate Commerce Commission that:

"the level of rates shall provide revenue sufficient to pay wages and other expenses of operation, a fair return on the value of the property used in the public service, and establish and maintain a credit sufficient to attract the new capital necessary to meet the public need for transportation facilities."

3. Greater unification of public regulation of the privately owned and operated companies, by broadening national control; with exclusive national control of the issue of securities and the expenditure of new capital, and provision for federal incorporation of interstate carriers.

4. Authorization of consolidations of existing lines into strong, competitive systems, whenever found to be in the public interest; also providing for joint use of equipment and terminals when in the public interest.

5. A Federal Transportation Board, charged with the general oversight, from the point of view of the public interest, of all transportation.

The Federal Transportation Board, proposed by the railroads, would be composed of three commissioners appointed by the President.

This board would be co-ordinate with the Interstate Commerce Commission, and would relieve it of all functions excepting rate regulation, valuation and accounting.

The duties of the Federal Transportation Board in addition, would be:

(a) To certify from time to time to the Interstate Commerce Commission the amount of operating revenues needed by the carriers to enable them to perform their public service.

(b) To require the distribution in times of congestion of traffic from the more congested to the less congested lines, when in the public interest.

(c) To require the joint use of terminals when in the public interest.

(d) To consolidate all lines into a unified system in times of national emergency, as directed by the President.

In order to provide a bridge over which the railroads can return to private operation, without risking financial disaster, the railroad executives make these suggestions:

(1) With the termination of government operation, the level of rates established by the government to remain temporarily in force.

(2) The Interstate Commerce Commission, in consultation with the director general of railroads and the new Federal Transportation Board, to readjust rates so as to restore the equilibrium between revenues and expenses and make the carriers again self-supporting.

(3) Pending this readjustment the government guarantee of the standard return to continue.

(4) The indebtedness of the railroad companies to the government on account of new capital expenditures made during war control to be funded for 10 years.

Mr. Cuyler stated that the principles and measures proposed had been unanimously agreed to by all the roads in the association.

They include several important changes from the original outline of principles presented before the Senate committee early in the year.

Mr. Cuyler also introduced a complete bill containing the provisions to carry out the principles proposed by the railway executives which was explained in more complete detail by Alfred P. Thom, counsel for the Association of Railway Executives.

Mr. Cuyler also read a statement prepared by A. J. County, vice-president of the Pennsylvania, in reply to Mr. Plumb's statement including the Pennsylvania among eight eastern roads which he said had issued stock for less than its market value.

He pointed out that a large issue of stock always depresses the market value and showed that in the period mentioned the Pennsylvania had received more than $40,000,000 in premiums by issuing stock to its stockholders at 120 per cent of par.

Instead of being watered he said the Pennsylvania had property that cost over $400,000,000 in excess of the capitalization.

In conclusion Mr. Cuyler made the following statement regarding the Plumb plan:

"I cannot bring these remarks to a close without reference to the proposal as to a future railroad policy made to this committee by counsel for certain groups of the railroad employees.

"I am unable to accept this proposal as creating an issue between railroad companies and the great body of employees. The workers on the railroads are fair-minded men, thoroughly patriotic and devoted, as their fellow citizens are, to our American institutions. In my judgment, they will never knowingly consent to dangerous experiments destructive of our institutions, under which we have grown to be the foremost nation of the world, and under which there have been established standards of happiness and well-being of which all of us have a right to be proud.

"I have complete confidence that a proposal as radical, as revolutionary of the accepted and cherished principles of our social and economic life, as the proposal made to you, will never, when it is fully understood, receive the sanction of the great body of our citizens, whether engaged in railroad work or in other occupations.

"The people have already made a correct appraisal of the danger of the proposal, and have realized that it involves in essence the taking of the means of all the people, to acquire

the railroad properties from their owners, and turn them over, not to all the people, not even to all labor, but to one class of labor—and that a comparatively small one—to manage and operate for their own advantage and without adequate responsibility to any public authority.

"In order to popularize the proposal, it is accompanied by a suggestion of a reduction of railway rates. Without reference to the pending large demands for further increases, railway wages, since the beginning of Federal control, have already been increased about a thousand millions of dollars a year, which is more than the entire annual return on the capital invested in the railroads.

"The public has been quick to see that the promise in this plan of a reduction of railway rates is entirely illusory, and, in fact, that it promises instead a very large increase either in rates or taxes, for the public burden would depend upon the exercise of the power of the employees to fix their own wages.

"The payment of the wages thus fixed would constitute a charge against all the people either in transportation rates or in taxes.

"It is declared by the proponents of this measure that it introduces democracy into industry. Democracy is the rule of all the people. But this would be the rule of a very small minority.

"Instead of democratizing industry, it would establish in industry class power and privilege. It is a proposal to take a large part of the national wealth and set it aside for the benefit of relatively a very small class of our population, at the expense of all the rest.

"Railroad owners, while the immediate object of attack, are by no means chiefly interested in the issue which has thus been raised, although these owners, directly and indirectly, constitute a very large part of our population.

"As long as we have a Constitution, the owners must be paid adequate compensation for their property if it is taken.

"The issue affects the entire people, for it constitutes an assault upon the very fundamentals of our institution.

"As such it is the business of the entire public and as such it will be opposed by all these who are attached to American ideals and to American conceptions of government and social order."

Mr. Cuyler explained that the proposed bill did not include any provision for the settlement of labor disputes but that one would be submitted later. Asked how the executives proposed to take care of the situation of the weak roads, Mr. Cuyler said they had not intended to, on the ground that it would be contrary to the spirit of American enterprise as well as unconstitutional to require a strong, well managed road to contribute to the support of a weak road. In reply to a question he said that in order to protect a community vitally dependent upon the service of a weak road the public might be willing to have the government aid it financially, but he did not suggest such a plan.

Mr. Sims referred to the arguments made by advocates of the Warfield plan that a road ought to be required to give up two-thirds of its return above 6 per cent. Mr. Cuyler said the Warfield plan apparently represented the interest of the bond holders, who desire protection for their fixed return, rather than the stockholders. When Mr. Sims asked why there should be any difference of opinion between the executives and the bondholders, he said there should not be because the executives feel that they represent "the whole road," but he added that he was a director in a large insurance company and in many large trust companies and had never heard the Warfield plan discussed in any of their meetings, nor had he heard of any dissent from any of the bondholders to the proposals of the executives nor any evidence, except the Warfield plan, of any difference of opinion between the two classes of security owners.

Mr. Cuyler said that if satisfactory legislation can be enacted the sooner the roads are returned the better, because both the corporate and the operating organizations are "rapidly going to pieces."

Mr. Thom began his argument with a brief discussion of the Plumb plan, quoting opinions of the Interstate Commerce Commission to controvert the assertion that railroad property paid for out of surplus belongs to the public and should not be included in the value. He also declared that if the labor organizations should possess sufficient political influence to put through such a bill as that they have proposed there would be no difficulty about their being able to get control of the board of directors.

The plan proposed by the railway executives was also to be discussed by R. S. Lovett, Howard Elliott and S. T. Bledsoe.

Luther M. Walter

Luther M. Walter, general counsel of the association, brought out the fundamentals of the Warfield plan, providing for rates that would give a fixed minimum return on the aggregate property investment and for division of all surplus over the fixed return between labor, the roads earning the surplus and the public in equal shares. Mr. Walter declared that labor should participate in the earnings of the carriers and that such participation was a fundamental of the plan. He showed that under the minimum return plan the net result of railroad operations in the pre-war test period would have been the turning in of a surplus of $84,000,000 by some of the carriers for division with labor and the public.

Mr. Walter said in part:

"The purpose of this association is to secure from public authority such action as will protect the investments made and make it possible for capital to be furnished to the railroads for future needs. The financial structure of all credits depends upon the results of legislation by this Congress upon the railroad question.

"We believe that capital invested in railroad properties is entitled to a fair return, that labor is entitled to a just wage, and that the public which furnishes the money is entitled to efficient service at the lowest cost.

"Our association presents to you a bill which embodies and effectuates the views of the association. Our plan can be put into effect immediately. No other plan yet suggested dealing with the financial needs of the carriers can be effectuated short of a period of years. The keystone of the plan is a congressional direction to the Interstate Commerce Commission that it shall make freight and passenger rates sufficient to pay operating expenses, maintain railroad properties, and give not less than 6 per cent return upon the aggregate fair value of the property devoted to transportation in each of the principal traffic territories. The chief difficulty in the past has been the impossibility of adjusting rates so that the great bulk of the railroads of the country could earn sufficient to operate and maintain their individual properties without at the same time furnishing excessive earnings to a few great carriers.

"We use the property investment account as the basis upon which to apply the 6 per cent, because the Interstate Commerce Commission in the five per cent case found that the only basis available for prompt determination of the sufficiency of the return upon investment. In that case the commission found that the average return had been 5.64 per cent over the period from 1900 to 1914. Under the Warfield plan, Congress is asked to direct the commission to furnish a return from rates of not less than 6 per cent. When two-thirds of the excess earned by individual carriers over 6 per

cent upon their property investment has been placed in the excess earnings fund, there will remain to the carriers average earnings of 5.78 per cent, or only .14 per cent more than the commission found was not adequate in the public needs and for the railroad needs. The Supreme Court at its last term held in the Lincoln Gas Case that the return of 6 per cent on the property devoted to the public use was the minimum which the law would permit.

"The second fundamental is that labor shall participate in the earnings of the carriers. Labor's share should be used for the establishment of the insurance system or for profit-sharing. By reason of the largely increased duties which will fall upon the commission the security holders ask Congress to create six regional interstate commerce commissions, subordinate to the Commission, but with all the powers of the Interstate Commerce Commission in their respective territories. Our plan contemplates that these regional commissions shall act as boards of conciliation in settling wage disputes, being a body close to the employees, the carriers and the shippers. The issuance of securities of all carriers engaged in interstate commerce would be vested exclusively in federal authority.

"Finally, the plan would create a corporation operated without profit to the railroads and managed by the nine interstate Commerce Commissioners and eight railroad men selected by the railroads. This corporation would furnish expert advice to the commission in the operation of carriers, would unify terminals, would operate equipment such as has been built by the Railroad Administration and allocated to the individual railroads. It would furnish a great clearing house for railroad operation and in times of emergency would constitute the directing force for the handling of the railroads as a single system.

"Our association is opposed to the compulsory federal incorporation of railroads, to the provision for a new cabinet officer, or for a federal transportation board, or any board having supervisory power over the interstate commerce commission.

"We are opposed to the creation of new and larger regional companies because it means the elimination of competition in service, and competition in service is the thing which the public demands and which the Railroad Administration has not furnished. Many shippers and manufacturers' organizations have approved our plan. It is simple, easy of application, and can be made immediately effective. Under it investors will feel secure, labor will receive a fair wage and the shipper will obtain the service which he pays for.

"I have quoted liberally from the commission's two important general rate increase decisions to show that the commission itself used the property investment account to test the sufficiency of the revenues of the carriers as a whole in each of the three great traffic territories. That 6 per cent is the proper rate of return will not be questioned by anyone if private operation is to obtain. One of the great difficulties has been the adjustment of the rate structure so that the great bulk of the roads would have sufficient revenue without at the same time giving excessive earnings to the stronger roads. The weak and the strong roads operate in the same territory. The rate which is applicable on one must be applicable upon the other, else the road with the lower rate would enjoy all the tonnage, and the road with the higher rate would find itself without tonnage. Having in mind the fundamental, long-established rule that an investment in a public utility such as a railroad is entitled only to a fair return, there can be no constitutional inhibition upon this Congress fixing a maximum return. There should, however, be accorded to a carrier a portion of the earnings in excess of the maximum reasonable return so that the incentive to economy and efficiency in operation should not be lost. We believe that one third of the excess over 6 per cent is sufficient to encourage incentive and initiative in operation; that the carrier will be anxious to make the additional dollar in order that it may have the 33⅓ cents for its own treasury. The other two-thirds of the excess, I believe, should be divided equally between labor and the public which has paid the money.

L. M. Walter

"The application of this principal will not reduce the usual and customary dividends of the carriers. Had the system been in effect during the test period of three years ending June 30, 1917, there would have been excess earnings of $126,000,000. The 78 corporations earning in excess of 6 per cent would have received one-third, $42,000,000. There would have been left to divide between labor and the public some $84,000,000. During that three-year pediod, had the plan been in effect every customary dividend could have been paid. The only effect would have been to reduce the corporate surplus of carriers to whose earnings the plan applied.

"The plan contemplates a continuation of the present rate committees composed of representatives of both railroads and shippers to primarily consider and pass upon all changes in rates requested by either railroads or shippers and before being filed with the regional commission or the Interstate Commerce Commission."

Mr. Walter began his statement by telling the committee that the operation of the railroads up to June 30 had cost the government a deficit of $550,000,000 and that by the end of the year we can count on an irrecoverable loss of at least a billion. He presented the six months figures to show the present situation of the carriers and to show that the government cannot fairly turn back the roads without making provision for an assurance of revenues sufficient to enable them to provide good service with reasonable wages to the employees and a fair return to the investor. "When you do that," he said, "the quicker you return them the better." In commenting on the reduction in traffic expenses he said that one of the reasons why the Railroad Administration has not been successful was because the men who kept in touch with

the shippers had been removed from duty. He added that he said this after having handled most of the complaints from shippers for nine months while he was assistant director of public service for the Railroad Administration. Many of the traffic men were given other duties, many taken care of by the corporations and many good men were let go, he said in reply to a question.

Asked about the volume of traffic during the six months period, Mr. Walter showed that the ton miles per mile of road per day were 5.081 in the first half of 1917, 4.975 in the first half of 1918 and 4.266 in the first half of 1919. Representative Merritt remarked that these figures have some bearing on the statement that the railroads "had ceased to function." Mr. Walter said that the congestion had come in the latter part of 1917 but that if some of the restrictions had been removed and the railroad officers allowed to create their own organization and their own director general he thought they would have done as well as or better than was done under government operation. He added that west of Chicago and south of the Potomac there was little congestion.

"I feel that way myself," said Representative Montague.

Representative Sims asked if the roads would not be more economically operated if they were returned now.

"They might reduce the deficit," replied Mr. Walter, "but to return them under present conditions would be to shift from all the people to the railroad owners the burden of expenses which the government has itself put on the roads."

The first problem is to get a proper rate level, Mr. Walter declared, and for that reason the association suggests that Congress should give the commission a definite instruction. The commission, he thought, ought to be glad to have a more specific basis to work on than a law that rates must be "just and reasonable" and a specific rule is needed, he said, because the commission is composed of several minds.

Until the commission has completed its valuation, Mr. Walter said, the property investment account should be taken as the only available basis, subject to corrections for any obvious defects. He pointed out that defects in this account as to individual roads would be absorbed in the aggregate on which the rate level would be based and also in the indisputable increase in values not represented in the accounts.

Replying to Mr. Plumb's repeated claims that the property investment accounts are unreliable, Mr. Walter pointed out that Mr. Plumb had read to the committee only some of the earlier statements by the commission criticizing these figures. He also pointed out that of the 19 billions in the property account, 6 billions are represented by cash expended under the strict accounting rules of the commission since 1907 and that the five roads whose valuations were taken by Mr. Plumb as the criterion for charging that the other roads were worth only half their property account represented only 1,800 miles out of 260,000. The points were readily appreciated by members of the committee, who smiled some at Mr. Plumb's expense.

"Do the proponents of the Plumb plan question that 6 billion dollars?" asked Representative Cooper.

"Mr. Plumb just tells you what he thinks the property is worth as a whole," replied Mr. Walter. "But this shows how futile it is to accept his figures. Of course, the lower he makes the valuation the less the fixed charges and the more for wages. Mr. Plumb probably believes what he says."

"I have seen some very honest men believe some curious things," remarked Mr. Montague.

Chairman Esch asked if the courts had ever ignored the property investment account and when Mr. Walter replied that they could not, he asked: "Then what hope have the Plumb plan advocates that the courts will sustain their figures?"

"I can't see a possible chance," said Mr. Walter. "I haven't any doubt that the courts will sustain a value of 18 or 19 billions. However, we are asking you merely to accept it as a yardstick until we get an actual valuation."

Mr. Walter devoted some time to explaining the proposed rule of rate-making. "If you are going to see that rates are high enough," he said, "you have got to do something to see that some roads do not earn too much." He replied to the argument that the government cannot take from one road to give to another by saying that this plan does neither, because the two-thirds of the excess never becomes the property of the company, which has had its fair return and a little more as an incentive, but is held in trust or dedicated to a public use. He compared it with an amount collected by a carrier above what the commission finds to be a reasonable rate, which is returned to the shipper as reparation. He insisted that none of the excess goes to make up any deficiency of the weaker roads. The proposed corporation might take over special equipment such as refrigerator and tank cars and collect car hire from the roads. As counsel for one of the packers, Mr. Walter said he knew the packers would be glad to get rid of their investment in cars if assured an adequate car supply, but no single road can afford to own enough special equipment which has a seasonable use.

Mr. Walter thought the shippers would be entirely willing to pay rates high enough to produce an average of 6 per cent if assured that an undue proportion of profit would not go to the richer roads. He also said that the Federal Reserve Bank act affords a precedent both for the 6 per cent and for the distribution of excess earnings. Applying the proposed rule to the average figures of the test period, in which the railroads earned 5.2 per cent, Mr. Walter showed that to raise the rate level to produce 6 per cent would result in 78 roads contributing $84,000,000 to the excess earnings fund, but would leave them better off by $24,000,000, while 84 roads would not contribute but would be better off by $29,000,000.

Forney Johnston

Forney Johnston, of advisory counsel of the association, urged that the Warfield plan is the one solution upon which all the conflicting elements in the situation could unite. Congress must give constructive relief, he said, or look upon the overwhelming of the present economic situation, the plunging of the railroads into bankruptcy or government ownership.

His statement was in part as follows:

"We suggest no radical, complicated or costly process. We urge Congress to put into effect certain policies which have been found by experience to be essential both to the protection of railroads and to the protection of the public interest in transportation.

"We freely acknowledge the propriety of the main features of the bill introduced by Mr. Esch. The measure we have formulated embodies substantially all of the advances proposed in the Esch bill but accompanies them with the indispensable provisions necessary to protect American transportation from headlong bankruptcy. We earnestly caution the committee against the report of any bill without provisions for constructive relief. The representative of the commission who has testified before you has asserted that transitional and constructive relief is imperative; that the Esch bill does not embody that relief; that normal pre-war conditions can never be expected to return and that it is squarely up to Congress to define the policy which is to govern the railroads. Shall they be returned to their owners on a self-supporting basis that will justify further investment or shall the established system of ownership and operation under complete regulation be condemned by leaving them as permanent mendicants before the United States Treasury or the Interstate Commerce Commission?

"The American people have invested six billion dollars in

permanent railroad property—road and equipment—since 1907. That sum was added under supervision of the commission. Yet that vast sum produced in 1917, the so-called high-water mark of railroad prosperity, only about 200 millions in net income more than was earned in 1907. In short, the American railways produced six billion of new money to earn less than the government paid for loans secured by a mortgage upon the American people.

"In the so-called banner period of 1915-16-17, 120 out of the 162 systems, Class I railroads, operating a total of more than 170,000 miles or over two-thirds of the total mileage in the United States, earned less than 6 per cent upon their property investments. In the year 1916, 91 railroads, operating over 80,000 miles, paid no dividends whatever. Yet before the committees of Congress and in every case brought before the commission to advance rates, a vast mileage of American railways has been choked off with the assertion that average statistics show average prosperity.

"In all of these cases the commission has been actuated to deny general relief because certain roads were prosperous and the commission was unwilling to add to their prosperity even to save the large number of roads which were receiving admittedly inadequate revenue. Under these conditions, opposed in every effort to adjust rates to meet proven necessities by powerful mobilization on part of the shippers, the American railroads have been kept in a bread line before the door of the Interstate Commerce Commission since 1910. Relief has been denied or grudgingly and sparingly dealt out because certain roads in each region were thought to be affluent.

"The fundamental proposal of the Warfield plan is that this continual basis for warfare between the shipper and the railroads, this constant depressing factor against relief before the commission when relief is necessary, must be removed by regulation of excess earnings which will relieve the shipping organizations of their apprehension and the commission of the odium which would be visited upon it if affluent railroads were given higher rates to protect American transportation from bankruptcy.

"For this reason we believe that in asking Congress to instruct the commission that a 6 per cent rate level which would leave only 5½ per cent in the treasury of the Class I railroads we are suggesting the lowest possible ratio on which the railroads, as a whole, can survive, the lowest in the aggregate which any court would sustain. It is the irreducible minimum. The present law and the bill being considered by your committee give no consideration to the necessity for general advances. The power of the commission is the power to suspend and reduce. It can act only when individual rates are proposed or put into effect by the railroads which are in violation of the law, that is, unreasonable or discriminatory.

"Thus a petition for general relief can be inaugurated only by the needy carriers conspiring to advance competitive rates in violation of the Sherman act, filing those rates, and having the proposed schedules suspended. While the commission ordered an investigation in 1913, members of that body dissented on the ground that the commission had no power to investigate the carriers' necessity for revenue. So the railroads filed tariffs in October, 1913, and forced their suspension. This situation is fundamentally wrong. The commission which is to be given the power to force railroads to add billions of dollars to their investment for new tracks and facilities should be required to produce a reasonable return upon that investment. If a railroad is ordered to secure a hundred million of dollars for additions or facilities, it should not be forced to stand in line before the commission in year long efforts to secure the revenue to sustain that investment. It would be immoral to ask the commission to approve the sale of securities as being consistent with the public interest unless Congress proposes that the purchasers shall be permitted a square chance for a reasonable return. That investment, which will hereafter be forced and in every event approved by the commission, should go on the books of the carrier at what the money cost and the rate level should directly reflect that cost.

"For every dollar invested in the average American railroad in cash since 1907 it has received a return of less than 4 per cent, if the income and investment of 1917 be compared with the income and investment of 1907. Congress cannot expect this result to continue. It must now determine its policy to the railways as a whole, when that policy is declared, the so-called weak roads, indispensable to a vast population, can decently and in order readjust their organizations to a permanent and wholesome basis. Under the 6 per cent level, accompanied by a regulation of earnings over 6 per cent as proposed by the plan, and applying that plan to the three-year pre-war period, 78 railroads would have received less than 6 per cent on the property accounts. Their average would have been 8.34 per cent. It is obvious that this result is just what we have asserted—the irreducible minimum.

"We feel absolutely assured that in presenting the Association plan we stand upon safe ground, consistent with the Constitution and with American traditions. While it is progressive in its acceptance of the idea of complete regulation, we are certain that it preserves the incentive to good service, high efficiency and consideration for passengers and shippers which no governmental organism or class organization would accord."

Samuel H. Beach

Samuel H. Beach told the committee that half of the people of the United States are directly interested in return of the railroads to private ownership on a basis that will afford adequate protection to security holders. He strongly advocated the Warfield plan as the only acceptable vehicle for the accomplishment of the end. Mr. Beach said in part:

"The only idea in the minds of many people regarding railroad securities is that they are mainly owned and held by the very wealthy. They do not stop to consider the fact that the major portion of the liquid wealth of the nation consists of the small accumulations of the many. The Savings Banks Association of the State of New York, comprises in its membership 139 of the 141 mutual savings banks in the State. It is needless to say these banks are popular with the people, for over one-third of the entire population of New York state are depositors in mutual savings banks. To be exact there are 3,500,000 depositors, who have to their aggregate credit the enormous sum of over two billions of dollars. There are similar mutual savings banks in 14 other states, the total number being 615, which own approximately $850,000,000, of railroad securities. These securities belong to over 9,000,000 people.

"Savings banks are required by law to invest the money of their depositors as speedily as possible in certain safe and specifically designated high-class securities and among them of necessity are these issued by railroads. Besides the savings bank depositors there are 33 million citizens holding life insurance policies; and railroad securities form a large block in the investments of the companies by which these policies are issued. In addition to these are millions of small depositors in trust companies, national banks and state banks; also hundreds of universities, thousands of trust estates and individual investors, so that in all 50 million people, a full half of all the people in the nation, comprising mainly the middle class—made up of business men, mechanics, clerks, laborers, the widow and the orphan—are vitally interested in having the railroads returned to private ownership under such terms and conditions as will render present outstanding bonds de-

sirable to retain and future issues attractive as an investment.

"The vital point of this proposed measure is that if to those roads having the average of efficiency can be assured a return of 6 per cent by act of Congress, it will settle and take out of the hands of the Interstate Commerce Commission the much vexed question of 'What is a reasonable return?'

"Ex-Senator Elihu Root said, in a letter addressed to Mr. Warfield touching on this plan, 'I think you have put your hook into the key log of the jam.' No more terse or more effective description of the conditions which prevail could be expressed than is contained in these words of Mr. Root. We all know there is a jam. Every business man in the nation knows that government ownership or government operation of railroads can never be made either economical or efficient and, in a Republic to the continued existence of which political parties are necessary, the making of a political asset of the vast number of railroad employees which our great transportation system requires, would be a constant and grave menace to a good government.

"It is our firm conviction that the railroads cannot avoid destruction and eventual governmental absorption unless they are assured of a return of not less than 6 per cent, 'though exercise by Congress of its duty to stop, by act, the knife of regulation short of the heart of the transportation system of the United States.'

"Nothing in human experience affords a precedent for such operation of railroads, in this or any other country, as the past two years have witnessed. Operating costs have mounted so far out of proportion to receipts that the bonds of at least eight or nine railroads, which were eligible before the war started are in a fair way to become illegal for savings banks to hold. It is easy to ask 'Why cannot these laws be made more liberal to conform to new conditions?' But we do not want these laws changed. We have no need to attempt to camouflage our position. What we do want is to have such legislation enacted as will bring the railroad securities up to the requirements of the law; so that instead of being forced to sell the bonds we now hold and thereby still further deflecting an already depressed market we may feel warranted and justified in adding to our holdings by investing in new issues of railroad bonds as much of the two billions of deposits entrusted to our care as we are permitted to do by the laws which govern our investments."

George A. Post

Submitting the National Chamber's plan, and its objection to the Plumb plan, on August 18, George A. Post said that at the time the referendum vote was taken there was no doubt in the minds of the railroad committee that government ownership and operation was not the issue pressing for attention upon the present Congress.

"Due to the unfavorable impression made upon the public mind by the operation of the railroads under federal control for the period of 16 months," he said, "there was manifest throughout the country a strong, even overwhelming, sentiment against continuance of federal control and operation. Many men in public office and multitudes of private citizens, prior to the adventure into the field of federal control, had been harshly critical of railroad management; had jealously advocated and brought about legislation severely restrictive and punitive respecting railroad operation, and in their bitterness because of what they considered unfair and aggravating practices of the railroad, had declared that government ownership and operation was the only remedy for railroad evils. Later they were so aroused by what they deemed the baleful effects of government operation upon their personal convenience and the conduct of their business, brought about by the indifference of governmental agencies, that they renounced their previous advocacy of government ownership, and became vigorous opponents thereof. So recently as July 15 last, at the opening of these hearings before this committee, Chairman Esch said: 'In view of the widespread sentiment throughout the country against government ownership, I feel that we ought not to spend very much time on that proposition.'

"American business is deeply concerned respecting the future of our railroads. It has high hopes of the wise outcome of your deliberations. It has noted with gratification the earnestness, patience and fairness with which the Congressional committees are seeking to secure all possible information. The chamber has keen appreciation of the perplexities that confront you in framing the legislation which must precede the return of the railroads to their owners. It has aimed to be helpful to you in showing the trend of thought of American business upon some of the outstanding issues involved in your deliberations. It knows that deep study is needed of the complexities inherent in the very existence of a transportation system which serves those who need service that they desire to obtain at the lowest possible rates—a service which is rendered possible through the labors of those who are entitled to liberal wages for dangerous and exacting toil, and require investment of billions through the savings of thrifty folks who will invest only if the return is attractive to them. In such circumstances, not one of the elements may reasonably hope to exact the fullest measure of its desire, either as to lowness of rates, height of wages, or abundance of investment return."

Mr. Post declared that under government ownership the development of the railroad facilities, which means so much to the country's progress, would depend upon Congressional appropriations, and that would prevent the anticipation of transportation needs. He pointed out that appropriations were not to be made in the amount and at the time necessary to insude adequate development and that political considerations not only would control the amount of appropriations, and the objects for which they were made, but would also weigh heavily for the selection of men for official positions.

To acquire the railroads, he said, the government would have to pledge its credit for 18 to 20 billions of dollars, at a time when other large financing must be done. It would be difficult for the government to dispose of the securities required to purchase the railroads, and it would be necessary for the government to secure from five hundred million to one billion dollars of new capital every year. If the government were to assume the burden of financing the railroads at the present time, when the war debt is so large, its interest rate would necessarily be as high as, if not higher than, the rate at which corporations could secure capital.

Business men of the country are convinced, Mr. Post said, that government operation cannot be as efficient as corporate management. Competition, the incentive to efficiency and progress in private enterprises, he declared, is absent from the government administration of affairs. Individual initiative is less characteristic, bureaucratic methods more so, and the services rendered are less progressively efficient.

The concensus of opinion of the National Chamber, Mr. Post said, is that unless the government adopted the policy of fixing low rates and fares with the intention that any resulting deficit from operations should be placed as an increased burden of taxes upon the general public, rates and fares would be higher under government than under private operation, on the theory that under government operation expenses rise in relation to income, and the charges imposed by the government must be higher than those which it would be necessary to permit railroad corporations to make.

Mr. Post urged the return of the railroads to corporate control as soon as remedial legislation can be enacted. The plan he offered for the future provides that permission be granted for railroads to consolidate, in the public interest,

with prior approval of government authority, in a limited number of strong competing systems, so located that each of the principal traffic centers of the country shall, if possible, be served by more than one system, the proposed grouping to be about the present large systems, and not by territorial subdivisions of the country.

The position of the National Chamber on the consolidation feature, Mr. Post said, is in substance: The existence of so many railroad systems as there are now increases the difficulty of coordinating their facilities, and service to the extent necessary to secure the most economical operation. Moreover, some of the present roads are financially weak and their continuance as separate systems complicates the government's problems of rate making; of common or joint use of equipment and facilities; of the regulation of security issues, and of reestablishing the financial credit of the railroads as a whole. If the railroad systems that are financially unstable and the many systems of minor importance can (subject to the approval of the government, and under conditions which it may prescribe) be grouped or consolidated, with a limited number of strong systems, a better service can be rendered and a larger development of lines, terminals and other facilities will be possible. If such a plan shall be found by Congress to be constitutional and feasible, the National Chamber of Commerce recommends that railroad corporations engaged in interstate commerce be made subject to the United States by the enactment of a statute similar to the National Bank Act, the states retaining the power of taxation and police regulation.

Federal regulation of capital expenditures and securities of railroads engaged in interstate commerce is favored, as is federal regulation of intrastate rates affecting interstate commerce.

The National Chamber plan, Mr. Post explained, calls for the enactment of a statutory rule providing that railroad rates and fares authorized by the Interstate Commerce Commission shall be designed to yield the railroads, in each of the traffic sections which shall be designated by the commission, aggregate revenues which shall provide (after allotment has been made for renewals and depreciation) such net returns upon a fair value (determined by public authority) of the property devoted to the public use as will be sufficient to enable the carriers to obtain at reasonable cost the capital required to furnish the public with adequate facilities and efficient and economical service.

The National Chamber, Mr. Post said, authorized him strongly to recommend that the Interstate Commerce Commission retain all its present power, and be given certain additional power, and that there be created a Federal Transportation Board whose general duty it shall be to promote the development of a national system of rail, water and highway transporation, and thus to make possible the economical use of all facilities. including tracks, terminals, transfer facilities, steam and electric roads, waterways and highways.

G. A. Post

The program of railroad legislation presented to the House committee by the National Transportation Conference is up to a certain point identical with the plan which Mr. Post presented as having received the approval of the members of the Chamber of Commerce. The conference program goes further, however, and includes certain recommendations which, although entirely in harmony with the principles embodied in the chamber plan, have not yet been submitted to the members of the chamber for their approval by referendum vote.

The Chamber of Commerce has published in one pamphlet and is distributing widely the program of railroad legislation adopted by the National Transportation Conference and also the statements in support of the program made before the House committee by members of the conference. Both the conference and the railroad committee of the chamber recommend:

(1) Corporate ownership and operation of railroads.

(2) Return of the roads to their owners as soon as the necessary legislation can be enacted.

(3) Consolidation of existing roads in strong, competing systems.

(4) Compulsory federal incorporation.

(5) Federal regulation of capital expenditures and security issues.

(6) Federal regulation of intrastate rates affecting interstate commerce.

(7) Adoption of a statutory rule of rate-making that will assure to the railroads revenue sufficient to enable them to furnish the public with adequate facilities and efficient and economical service.

(8) Creation of a Federal Transportation Board to promote the development of a national system of rail, water and highway transportation.

The further recommendations embodied in the conference program that are in harmony with the principles of the chamber's plan; but as yet have not been submitted to the members of the chamber for approval by referendum vote are as follows:

(1) Creation of a company contingent fund for each railroad and a general contingent fund for all railroads, to be used in strengthening and stabilizing railroad credit.

(2) Creation of a railroad reserve fund for use during the period of transition from government to corporate management.

(3) Creation of boards consisting of equal numbers of representatives of employes and officers of the railroads for the adjustment of wages, hours of labor and other conditions of service of railroad employes.

(4) Organization of the board of directors of each consolidated railroad company with twelve members of whom one shall be a representative of the employes of the system, and three shall be selected by the Federal Transportation Board to represent the principal interests involved in the territory served by the system.

Samuel Spring, associate counsel of the Citizens' National

Railroad League, has filed with the committee a statement supplemental to that of Nathan L. Amster, president of the league, made on July 29:

N. L. Amster's Valuation Plan

"If I may start at the end of our tentative bill first, I would like to point out the next to the last section, that dealing with valuation. It is vital," he said, "no rate base with any degree of permanency can be fixed until we know the value of our carriers on which they are entitled to earn a fair return. Consolidations under government supervision are impossible unless the public can rest assured that such consolidations will not represent financial juggling and the palming off on the public once again of a large mass of water securities.

"Yet, unhappily, the question of physical valuation of our carriers is a legal question to be determined by our courts and not by the Interstate Commerce Commission. This arises, as the committee well knows, from our constitutional provisions which enable the carriers to attack by injunction as confiscatory any valuation which they deem too low. The courts have not laid down any legal rules which are clear enough to enable the commission to fix any final value. Indeed the whole legal question is a sad muddle. The courts, as any lawyer knows, have a fixed judicial rule of avoiding the decision of any unnecessary question. Thus many of the most difficult questions in utility valuation are unsettled. Who can say anything definite about intangible values such as development cost or going concern value? Indeed, the method of reaching a final fair value still remains undetermined with any degree of certainty. Our courts have had too big a task. No one today desires to have the question of physical valuation decided with meticulous, breath-taking accuracy. A fair, honest approximation that will end the controversy is demanded. If we leave the decision of the Interstate Commerce Commission to be passed upon by the courts as valuation questions have been judicially determined in the past I say advisedly that it will take 10 years at least to end the matter. Congress, with due regard to constitutional rights, has got to settle the matter.

"Already the Interstate Commerce Commission has encountered sad difficulties. I might almost call the valuation battle before the commission between the carriers and the public represented by the state commissions acting through their national association a rare and delicate comedy. This committee doubtless remembers how violently opposed the carriers were to physical appraisal in 1913. At that time the theory of reproduction cost was welcomed by the public and condemned by the carriers. Now the carriers—or at least they were before the war—are urging the complete and logical application of the reproduction theory and demanding that the commission fix a final value. The public desires to avoid the reproduction theory because of the unhappy way in which it can be twisted and desires the commission to state the factors of value only, not the final value. Thus we are on the threshold of a heyday of litigation, briefs, arguments and passionate utterance. The Gordian knot must be cut by Congress and at once.

Now Mr. Amster has suggested a sound way of ending this matter. It is based on honest, fair approximation. Let us average the original cost, where an investment was made in good faith, and the reproduction cost. Then let us correct this result by capitalizing the net earnings of the road over a period of 10 years and averaging this result with our former figure. This is obviously fair. A road in reality is not worth what it cost to build it if it can't earn a fair return. By taking a 10-year period we give every road a fair chance to show its latent possibilities. I think that the Supreme Court will not for a moment say that this method of reaching a fair valuation, if adopted by Congress, is so clearly unreasonable as to require it to hold it void. The Supreme Court, it is true, has avoided taking the earnings of a road as an indication of its value in a rate case because it felt that this was arguing in a circle. But it has repeatedly and urgently said that any rate or value, over and above any question of original or reproduction cost, must be fair to the public and to the carrier. It has repeatedly said that any value producing a rate unreasonably high must be rejected. In a word it has left a big space for a corrective, and Mr. Amster's corrective, since it is the only one that I have discovered in a careful examination over a period of years of all court decisions and articles and discussions of the subject, will be in complete accord with the views of the court. Congress cannot leave this problem of determining the value for rates and consolidation of one-tenth of our entire wealth, so far as the principles of valuation are concerned, to the Interstate Commerce Commission. It is too vital a question for any commission to determine. I feel confident that the commission feels this way; at least the commission has shown the greatest prudence in avoiding a final decision of the question.

"Congress must speak. Congress is the logical—indeed the only body—that can speak. Mr. Amster has prepared and devised a solution that is sound, in accord with the views of the courts, is fair and just, and is the only solution seriously suggested.

"This bill adds to Section 19a of the act to regulate commerce various paragraphs which strive to end the valuation controversy. It ends the question of land values; it ends the question of intangible values. These provisions have been drafted only after a painstaking study of court and commission decisions and they are a codification of the best judicial views in a field where the decisions are in confusion.

"I would also like to add a word about the theory of regulation as evolved in this bill. The great weakness of regulation of our utilities in the past has been due to the fact that the public acted only after the act had been done. Then the public approved or disapproved. Too much of our regulation has been of the character of locking the barn after the horse was stolen. Again the utilities were hampered because they had to act and take the risk of the public's disapproval. This bill gives the Interstate Commerce Commission and the state railway commissions representation on the board of governors of the unified railroad corporation. Thus the regulatory bodies will know all that is being done and can exert their influence before the act is done. The time has come when we must have preventive regulation; the public must know all that is done from the very beginning."

Statement of S. H. Cowan

S. H. Cowan, representing the National Livestock Shippers' League, who appeared before the committee on August 18 and 19, argued that very little legislation is necessary before the railroads are returned. He delivered a characteristic tirade against both high rates and high wages, saying the director general has not been able to control either the traffic men who took advantage of the opportunity to "put it over on the shippers" or the brotherhoods. He said that labor was able to get nearly all it demanded and that the railroads want 6 per cent after labor gets what it wants, and as a result it is becoming too expensive to ship freight by rail. He thought it was time for Congress to "talk turkey" to both capital and labor and to fix it so that it won't be necessary, as he said, "to go to Washington to get permission to change a $5 bill." He opposed government ownership vigorously, saying the government is not organized to run a business and that the President has to appoint men he knows nothing about.

If the railroads are returned, he said, all the old statutes and constitutional guarantees will remain in effect, labor will continue to draw its high wages and the rates will remain in effect. When some of the members of the committee ques-

tioned whether the state rates would remain in effect he proposed that the existing rates be continued by law for four months after the return of the roads unless changed by the interstate or state commissions. He also proposed that the director general be authorized to retain control over some roads, that the railroads be paid the amount of working capital taken over, that they be required to pay all liabilities incurred by the director general in the ordinary course of operation, such as loss and damage claims, and charge them to the government, that an accounting board be appointed by the Interstate Commerce Commission to adjust accounts between the railroads and the government, to report to the commission, which should make a recommendation to Congress, and that Congress should make an appropriation for loans to the railroads.

Mr. Cowan said the purpose of the federal control act had been to pave the way for permanent government ownership and that the standard return was too large because it included about $300,000,000 for surplus. He said Mr. McAdoo thought he could shake the railroads up like a kaleidoscope and show a profit from unification, but that he "learned different just before he went to California to go into the moving pictures." He said he was not criticizing Mr. McAdoo, that he was honest in his opinions, and "one of our greatest men since Barnum." Asked whether the railroads would be able to avoid deficits under private operation Mr. Cowan said he did not know, but he thought Congress ought to investigate the operating expenses to see if they do not include a large amount of betterment work.

Mr. Cowan's argument was supplemented by S. C. Rowe, representing the Texas Cattle Raisers' Association, who particularly urged the creation of a board to regulate wages and legislation to prevent strikes.

Plumb Wants Congress to Investigate

INDICATIONS ARE APPEARING that the charges made by Glenn E. Plumb, counsel for the organized railway employees, before the House committee last week, are another part of the campaign to prevent the return of the railroads to private management, and thus to extend the period in which it is possible to pay wages without relation to the earning power of the railroads.

Representative Huddleston of Alabama has introduced a resolution in the House, copies of which were given out in advance by the Plumb Plan Press Bureau, providing for the appointment of a committee of six members to investigate the truth of the charges. Mr. Huddleston also made a speech, which was also given out in advance by the Plumb Plan Press Bureau, declaring that the "entire country was greatly shocked by these sensational charges." He declared that the railroad employees have "inside knowledge of the facts" and he objected to a suggestion that they be referred to the Interstate Commerce Commission.

Representative Denison of Illinois expressed surprise that the gentleman from Alabama, coming from the great industrial center of Birmingham, should state that the people were shocked by these charges. "Charges similar to these have been made in this country for the last five or ten years," he said, "and there is not anything new about them. The Interstate Commerce Commission has been investigating that question for five years."

Mr. Plumb also wrote a letter to Chairman Esch of the House committee, referring to a newspaper report that he intended to confer with officials of the Interstate Commerce Commission in order to learn whether it would be practicable for that body to conduct an investigation of the charges. Mr. Plumb said he feared Mr. Esch had missed the intent which actuated the preferment of those charges at this time; that the investigation should be made and reported upon before Congress acts on railroad legislation, and that the investigation should be made by a committee of the House or Senate or preferably by a joint committee. If Congress wishes to designate the Interstate Commerce Commission, he said, it should be expressly provided that the investigation be prompt in order that the report may be placed before Congress and the public "before the enactment of any measure looking to the restoration of the railroads to hands which we denounce as unclean." The letter then repeated the charges as made before the committee and concluded with another reference to the desire that a report be had before the railroads are returned to their private owners. Apparently Mr. Plumb recognizes that if he can secure a thorough investigation of the history of railroad land grants before the railroads are returned, the present system of government control might be continued for a very considerable part of the period advocated by Mr. McAdoo.

The Plumb Plan League has found another defender in Congress in the person of Representative Carrs of Minnesota, who was recently committee chairman of the Brotherhood of Locomotive Engineers. Mr. Carrs did not say much in favor of the plan, but he objected to statements made by other Congressmen that the railway brotherhoods forced the Adamson law by threats of a strike and that they are now seeking to force the Plumb plan by threats of strike. While the determination of the labor leaders was plainly not to accede to a delay on the question of wages, he said, there never has been a vestige of a threat of strike or the desire of intimidation with regard to the Sims bill.

"I can say of my own personal knowledge that in all the conferences of the railroad union presidents held during the spring and this summer in connection with their advocacy of the Plumb plan the subject of strike as a means to support the plan has never been even broached. The program called for introduction of the bill not before October, and then as the spirit of resistance on the wage questions became apparent the program was changed and the labor bill was thrown into the basket to prove to the men in the shops and on the trains that their interests were being carefully served. So, as it happens, the threats of strike were not made in support of the Sims bill, but the Sims bill was introduced when it was as an effective answer to the strikes."

Six Months Income 39.8 Per Cent of Standard Return

THE CLASS I RAILROADS under federal control during the first six months of this year earned 39.8 per cent of their standard return as compared with 38.4 per cent during the first half of 1918, according to a statement compiled by the Railroad Administration. The net federal income for six months was $156,827,416, as compared with $151,319,830 in the first half of 1918 and as compared with a standard return for this period of $393,975,779. The New England district had a deficit in both years. The Central Western region came nearer to earning its standard return than any of the others, but its percentage was only 63.1. A total of 58 roads had deficits for the six months period and only 20 roads earned their standard return. It will be noted that most of these are comparatively short lines that are handling a much greater traffic than formerly.

The operating revenues in the six months period show an increase from $2,055,966,861 to $2,324,499,304, or 13.1 per cent; the operating expenses increased 14.9 per cent. from $1,790,249,693 to $2,056,720,484.

The operating expenses for the first six months of 1918 do not include those months' proportion of retroactive wage payments made and accrued in subsequent months and are

Condensed Income Account

FOR 6 MONTHS ENDED JUNE 30, 1919, COMPARED WITH SAME PERIOD OF PREVIOUS YEAR

Railroad	Operating revenues			Operating expenses			Operating ratio		Net federal income (See notes)			Standard return (See notes)		Per cent net federal income to standard return, this period (See notes)	
	This year	Last year	Increase or decrease Per cent	This year	Last year	Increase or decrease Per cent	This year	Last year	This year	Last year	Increase or decrease	For this period	For entire year	This yr.	Last yr.
Total, New England District	$113,576,893	$104,632,237	8.5	$109,297,611	$98,731,229	10.7	96.2	94.4	D $1,637,747	D $3,074,986	$1,437,239	$17,097,876	$38,720,647	b	b
Total, Central District	388,151,521	340,544,282	14.0	339,005,693	310,194,356	9.3	87.3	91.1	31,529,942	9,282,055	22,247,887	63,005,258	142,684,644	50.0	14.7
Total, Ohio-Indiana District	66,616,386	62,809,339	6.1	58,027,744	53,660,976	8.1	87.1	85.4	4,918,991	3,615,751	1,303,240	9,630,510	21,809,702	51.1	37.5
Total, Eastern Region	568,344,800	507,985,858	11.9	506,331,048	462,586,561	9.5	89.1	91.1	34,811,186	9,822,820	24,988,366	89,733,644	203,214,993	38.8	10.9
Total, Allegheny Region	445,154,921	390,757,956	13.9	420,523,631	375,284,012	12.1	94.5	96.0	6,118,292	D 10,142,156	16,260,448	65,448,208	148,217,061	9.4	b
Total, Pocahontas Region	75,246,787	70,078,057	7.4	61,537,976	57,671,236	6.7	81.8	82.3	9,848,932	10,042,587	d 193,655	16,386,101	37,108,728	60.1	61.3
Total, Southern Region	305,876,829	270,125,864	13.2	274,216,785	217,145,662	26.3	89.6	80.4	19,735,414	42,335,278	d 22,599,864	44,848,991	101,567,115	44.0	94.4
Total, Northwestern Region	312,544,133	261,231,815	19.6	270,616,028	235,710,208	14.8	86.6	90.2	23,544,011	13,771,526	9,772,485	65,548,222	148,443,558	35.9	21.0
Total, Central Western Region	423,268,216	379,515,783	11.5	348,314,061	297,205,032	17.2	82.3	78.3	53,420,992	65,090,505	d 11,669,514	84,704,505	191,825,769	63.1	76.9
Total, Southwestern Region	194,063,618	176,271,528	10.1	175,180,955	144,646,982	21.1	90.3	82.1	9,348,589	20,399,269	d 11,050,680	27,306,108	61,838,684	34.2	74.7
Grand total, all regions	2,324,459,304	2,055,966,861	13.1	2,056,720,484	1,790,249,693	14.9	88.5	87.1	156,827,416	151,319,830	5,507,586	393,975,779	892,215,908	39.8	38.4
EASTERN REGION															
New England District															
Bangor & Aroostook	2,611,728	2,233,051	17.0	2,358,541	1,959,974	20.3	90.3	87.8	140,780	293,888	d 153,108	686,984	1,555,775	20.5	42.8
Boston & Albany	12,138,098	11,436,021	6.1	11,653,615	10,178,206	14.5	96.0	89.0	D 112,927	375,825	d 488,752	1,794,157	4,063,131	b	20.9
Boston & Maine	33,116,396	31,169,902	6.2	31,709,689	30,385,545	4.4	95.8	97.5	227,840	D 1,799,214	2,027,054	4,318,137	9,779,055	5.3	b
Central New England	3,057,400	2,763,010	10.7	2,998,878	2,496,430	20.1	98.1	90.4	D 309,546	D 200,997	d 108,549	648,280	1,468,124	b	b
Central Vermont	2,629,992	2,330,479	12.9	3,069,434	2,527,428	21.4	116.7	108.5	D 550,732	D 333,719	d 217,013	344,026	779,098	b	b
Grand Trunk Lines in New England	2,130,207	998,858	113.3	2,522,173	1,360,769	85.3	118.4	136.2	D 300,494	D 573,456	272,962	D 1,886	D 4,271	bc	bc
Maine Central	8,156,465	7,068,158	15.4	8,541,999	7,375,494	15.8	104.7	104.3	D 993,366	D 966,081	d 27,285	1,305,147	2,955,697	b	b
New York, New Haven & Hartford	47,535,175	44,533,001	6.7	44,280,701	40,391,830	9.6	93.2	90.7	301,329	135,950	165,379	7,549,029	17,095,884	4.0	1.8
Rutland	2,201,432	2,099,757	4.8	2,162,581	2,055,553	5.2	98.2	97.9	D 40,631	D 7,182	d 33,449	452,116	1,023,883	b	b
Total, New England District	113,576,893	104,632,237	8.5	109,297,611	98,731,229	10.7	96.2	94.4	D 1,637,747	D 3,074,986	1,437,239	17,097,876	38,720,647	b	b
Central District															
Ann Arbor	1,931,130	1,512,521	27.7	1,732,935	1,458,576	18.8	89.7	96.4	101,968	D 77,265	179,233	232,656	526,883	43.8	b
Buffalo, Rochester & Pittsburgh	6,480,097	8,033,382	d 19.3	7,231,724	7,963,487	d 9.2	111.6	99.1	D 937,480	342,532	d 1,280,012	1,446,764	3,276,410	b	23.7
Delaware & Hudson	15,938,986	15,153,911	5.2	15,014,920	14,669,244	2.4	94.2	96.8	433,503	D 107,762	541,265	3,271,857	7,409,600	13.2	b
Delaware, Lackawanna & Western	34,287,407	29,951,436	14.5	26,845,219	23,139,380	16.0	78.3	77.3	5,350,217	5,524,795	d 174,578	6,941,275	15,719,539	77.1	79.6
Detroit & Mackinac	719,953	711,255	1.2	835,093	668,137	25.0	116.0	93.9	D 172,327	30,737	d 203,064	137,180	310,664	b	22.4
Detroit & Toledo Shore Line	1,120,911	946,619	18.4	528,338	534,360	d 1.1	47.1	56.4	490,511	168,812	321,699	201,582	456,512	243.3	83.7
Erie (Inc. C. & E.)	46,784,085	40,626,398	15.1	46,962,743	44,967,497	4.4	100.4	110.7	D 2,424,953	D 6,960,074	4,535,121	6,945,485	15,729,068	b	b
Grand Trunk Western Lines	10,252,842	7,975,771	28.3	8,431,125	8,165,997	3.2	82.4	102.4	1,073,594	D 1,583,370	2,656,964	475,136	1,076,017	226.0	b
Lehigh & Hudson River	1,184,405	1,029,227	15.1	1,015,189	884,852	14.7	85.7	86.0	58,656	62,543	d 3,887	229,339	519,371	25.6	27.3
Lehigh & New England	1,591,508	1,752,602	d 9.2	1,281,968	1,362,627	d 5.0	80.5	77.7	266,095	406,106	d 140,011	501,519	1,135,761	53.1	81.0
Lehigh Valley	29,325,283	27,195,521	7.8	27,726,531	26,180,513	5.9	94.5	96.3	615,917	59,619	556,298	4,999,117	11,321,233	12.3	1.2
Michigan Central	35,083,567	29,356,570	19.5	27,554,912	23,825,153	15.6	78.5	81.2	5,939,486	3,174,153	2,765,333	3,555,578	8,052,127	167.0	89.3
Monongahela	1,575,784	1,348,318	16.9	1,191,176	995,487	19.7	75.6	73.8	353,996	104,882	249,114	257,473	583,086	137.5	40.7
New York Central	129,876,194	110,965,111	17.0	109,214,827	100,174,668	9.0	84.1	90.3	15,629,724	4,220,952	11,408,772	22,846,611	51,739,500	68.4	18.5
New York, Chicago & St. Louis	11,836,524	9,068,351	30.5	8,988,860	7,836,391	14.7	76.0	86.4	2,331,426	464,180	1,867,246	979,781	2,218,857	238.0	47.4
New York, Ontario & Western	4,610,067	4,776,097	d 3.5	4,512,011	4,495,899	0.4	97.9	94.1	D 30,052	98,988	d 129,040	928,882	2,103,589	b	10.7
New York, Susquehanna & Western (Inc. W. B. & E.)	2,611,856	2,218,701	d 9.3	1,917,854	2,171,645	d 11.7	95.3	97.9	D 81,976	21,780	d 103,756	432,798	980,135	b	5.0
Pere Marquette	15,638,076	12,193,644	28.2	12,715,728	10,540,649	20.6	81.3	86.4	2,222,529	493,437	1,729,092	1,655,091	3,748,196	134.3	29.8
Pittsburgh & Lake Erie	13,558,112	13,980,011	d 3.0	12,263,393	10,341,509	18.6	90.4	74.0	872,461	3,269,137	d 2,396,676	3,965,395	8,980,219	22.0	82.4
Pittsburg & Shawmut	535,974	617,831	d 13.2	675,160	584,263	15.6	126.0	94.6	D 151,182	133,968	d 285,150	267,612	606,048	b	50.1
Pittsburgh & West Virginia	642,191	856,716	d 25.0	1,004,376	803,773	25.0	156.4	93.8	D 405,383	D 51,004	d 354,379	104,657	237,910	b	b
Ulster & Delaware	461,718	414,259	11.5	593,819	461,025	28.8	128.6	111.3	D 160,547	D 70,458	d 90,089	56,525	128,009	b	b
Wabash	22,730,851	19,860,030	14.5	20,767,792	17,969,224	15.6	91.4	90.5	153,759	D 444,633	598,392	2,572,944	5,826,810	6.0	b
Total, Central District	388,151,521	340,544,282	14.0	339,005,693	310,194,356	9.3	87.3	91.1	31,529,942	9,282,055	22,247,887	63,005,258	142,684,644	50.0	14.7
Ohio-Indiana District															
Chicago, Indianapolis & Louisville	5,604,328	4,573,207	22.5	4,678,182	4,031,215	16.0	83.5	88.1	366,215	72,940	293,275	715,458	1,620,259	51.2	10.2
Cincinnati, Indianapolis & Western	1,381,004	1,450,300	d 4.8	1,600,484	1,424,071	12.4	115.9	98.2	D 311,207	D 31,308	d 279,899	186,437	422,213	b	b
Cincinnati Northern	1,409,470	1,166,097	20.9	1,097,257	1,072,350	2.3	77.9	92.0	207,471	D 53,545	261,016	140,255	317,628	147.9	b
Cleveland, Cincinnati, Chicago & St. Louis	32,305,000	29,301,568	10.3	25,859,126	23,424,630	10.4	80.1	79.9	4,876,492	2,589,079	2,287,413	4,388,586	9,938,597	111.1	59.0
Detroit, Toledo & Ironton	1,716,587	1,209,080	42.0	2,079,309	1,678,748	23.9	121.1	138.8	D 439,027	D 643,703	204,676	99,748	225,895	b	b
Hocking Valley	4,528,294	5,178,056	d 12.5	4,224,877	4,670,142	d 9.5	93.3	90.2	110,329	560,896	d 450,567	1,164,495	2,637,167	9.5	48.2
Kanawha & Michigan	1,975,871	2,363,304	d 16.4	1,892,626	1,768,180	7.0	95.8	74.8	23,205	661,040	d 637,835	571,895	1,295,141	4.1	115.6
Lake Erie & Western	4,429,793	4,084,316	8.5	4,537,064	3,644,743	24.5	102.4	89.2	D 276,900	165,457	d 442,357	683,790	1,548,542	b	24.2
Toledo & Ohio Central	3,970,457	4,240,881	d 6.4	3,900,493	4,044,705	d 3.6	98.2	95.4	D 212,956	64,098	d 277,054	479,832	1,086,651	b	13.4
Toledo, St. Louis & Western	3,482,878	3,562,917	d 3.1	2,998,153	2,935,136	2.1	86.8	82.4	185,837	248,424	d 62,587	439,050	994,294	42.3	56.8
Wheeling & Lake Erie	5,842,704	5,679,613	2.9	5,160,173	4,967,056	3.9	88.3	87.5	389,532	D 17,627	407,159	760,964	1,723,315	51.2	b
Total, Ohio-Indiana District	66,616,386	62,809,339	6.1	58,027,744	53,660,976	8.1	87.1	85.4	4,918,991	3,615,751	1,303,240	9,630,510	21,809,702	51.1	37.5
Grand total, Eastern Region	568,344,800	507,985,858	11.9	506,331,048	462,586,561	9.5	89.1	91.1	34,811,186	9,822,820	24,988,366	89,733,644	203,214,993	38.8	10.9

Condensed Income Account

FOR 6 MONTHS ENDED JUNE 30, 1919, COMPARED WITH SAME PERIOD OF PREVIOUS YEAR—Continued

Railroad	Operating revenues			Operating expenses			Operating ratio		Net federal income (See notes)			Standard return (See notes)		Per cent net federal income to standard return, this period (See notes)	
	This year	Last year	Increase or decrease Per cent	This year	Last year	Increase or decrease Per cent	This year	Last year	This year	Last year	Increase or decrease	For this period	For entire year	This yr.	Last yr.
ALLEGHENY REGION															
Baltimore & Ohio (Incl. Coal and Coke)	79,759,851	69,636,106	14.5	80,935,159	70,472,532	14.8	101.5	101.2	D 3,924,972	D 5,338,561	1,413,589	12,377,713	28,031,146	b	b
Bessemer & Lake Erie	5,688,417	4,987,912	14.0	4,549,027	4,112,382	10.6	80.0	82.4	1,257,563	1,383,903	d 126,340	2,064,213	4,674,714	60.9	67.0
Buffalo & Susquehanna	1,006,751	1,079,061	d 6.7	1,172,059	1,034,950	13.2	116.4	95.9	D 200,231	215,769	d 416,000	261,687	592,628	b	82.5
Central of New Jersey	20,197,406	19,086,173	5.8	18,456,254	16,750,838	10.2	91.4	87.8	807,451	1,192,375	d 384,924	4,129,696	9,352,301	19.6	28.9
Cumberland Valley	2,641,772	2,259,958	16.9	2,395,922	1,584,227	51.2	90.7	70.1	34,162	487,353	d 453,191	542,675	1,228,967	6.3	89.8
Grand Rapids & Indiana	3,535,766	3,129,087	13.0	3,431,113	2,943,513	16.6	97.0	94.1	D 106,905	D 73,882	d 33,023	410,389	929,385	b	b
Long Island	11,409,564	9,379,787	21.6	9,539,433	7,313,405	30.4	83.6	78.0	1,222,987	1,184,661	38,326	1,422,716	3,221,949	86.0	83.3
New York, Philadelphia & Norfolk	3,692,713	3,068,347	20.3	3,207,608	2,709,641	18.4	86.8	88.3	347,628	180,360	167,268	439,826	996,051	79.0	41.0
Pennsylvania East	174,626,274	152,123,346	14.8	163,816,981	149,036,128	9.9	93.8	98.0	D 5,550,303	D 4,610,832	10,432,432	22,704,077	51,416,712	21.5	b
Pennsylvania West (Inc. P. C. C. & St. L.)	91,263,769	74,894,276	21.9	84,752,350	73,413,972	15.4	92.9	98.0	4,882,129	1,417,204	7,071,803	11,625,160	26,326,679	21.2	b
Philadelphia & Reading	38,549,046	39,745,295	d 3.0	35,218,982	34,335,011	2.6	91.4	86.4	2,460,971	D 46,038	d 1,197,310	7,531,961	17,057,230	2.9	18.8
Staten Island Rapid Transit	1,073,279	763,127	40.6	956,397	709,183	34.9	89.1	92.9	219,894	D 58,692	92,374	157,563	356,824	29.4	b
Western Maryland	6,763,163	6,630,967	2.0	6,886,067	6,690,418	2.9	101.8	100.9	46,336	D 525,473	d 250,477	1,359,856	3,079,593	b	b
West Jersey & Seashore	4,947,150	3,974,576	24.5	5,206,269	4,177,812	24.6	105.2	105.1	D 309,169		d 94,079	420,676	952,682	b	b
Total, Allegheny Region	445,154,921	390,757,956	13.9	420,523,631	375,284,012	12.1	94.5	96.0	D 619,552						
POCAHONTAS REGION									6,118,292	D 10,142,156	16,260,448	65,448,208	148,217,061	9.4	b
Chesapeake & Ohio (Incl. C. & O. of Ind.)	34,778,133	30,040,974	15.8	27,983,460	25,022,783	11.8	80.5	83.3							
Norfolk & Western	35,358,795	34,969,428	1.1	29,234,802	28,731,901	1.8	82.7	82.2	5,123,924	3,926,934	1,196,990	5,840,639	13,226,983	87.7	67.2
Virginian	5,109,859	5,067,655	0.8	4,319,714	3,916,552	10.3	84.5	77.3	4,417,407	5,492,012	d 1,074,605	9,111,418	3,247,603	48.5	60.3
Total, Pocahontas Region	75,246,787	70,078,057	7.4	61,537,976	57,671,236	6.7	81.8	82.3	307,601	623,641	d 316,040	1,434,044		21.4	43.5
SOUTHERN REGION									9,848,932	10,042,587	d 193,655	16,386,101	37,108,728	60.1	61.3
Alabama & Vicksburg	1,331,734	1,083,550	22.9	1,237,214	904,689	36.8	92.9	83.5							
Alabama Great Southern	4,947,457	3,904,446	26.7	4,245,285	2,915,824	45.6	85.8	74.7	19,517	152,881	d 133,364	142,563	322,854	13.7	107.2
Atlanta & West Point	1,335,348	1,104,953	20.9	992,062	770,435	28.8	74.3	69.7	493,180	1,002,115	508,935	752,073	1,703,180	65.6	133.2
Atlanta, Birmingham & Atlantic	2,403,258	2,004,769	19.9	3,115,419	2,165,766	43.8	129.6	108.0	258,864	264,134	d 5,270	111,715	252,995	231.7	236.4
Atlantic Coast Line	32,858,909	26,226,235	25.3	27,065,814	20,191,010	34.0	82.4	77.0	D 817,087	D 286,839	d 530,248	4,495,587	10,180,915	b	b
Carolina, Clinchfield & Ohio	10,104,559	2,152,767	35.2	2,307,684	1,636,699	41.0	79.3	76.0	4,362,202	4,773,762	d 411,560	158,108	1,631,172	97.0	106.2
Central of Georgia	1,478,481	9,551,095	5.8	9,154,836	7,381,460	24.0	90.6	77.3	445,966	601,900	d 155,934	4,495,587	3,450,903	61.9	83.6
Charleston & Western Carolina	8,302,760	1,320,551	12.6	1,333,795	1,062,739	25.5	90.2	80.5	629,791	1,780,049	d 1,150,258	720,277	466,921	41.3	116.8
Cincinnati, New Orleans & Texas Pacific	5,390,729	6,604,119	25.7	6,965,638	5,454,565	27.7	83.9	82.6	94,463	1,370,100	d 45,272	1,523,815	3,541,040	45.8	67.8
Florida East Coast	2,954,221	5,030,538	7.2	4,595,198	3,063,124	50.0	85.2	60.9	1,179,685	1,589,800	d 190,415	206,178	2,842,842	75.4	87.6
Georgia	468,555	2,742,676	7.7	2,381,881	1,968,426	21.0	80.6	71.8	632,077	663,825	d 957,723	1,563,617	858,662	50.4	126.6
Georgia & Florida	2,136,119	461,988	1.4	631,549	477,274	32.3	134.8	103.3	602,651	D 54,815	d 61,174	1,255,314	88,000	158.9	175.1
Georgia, Southern & Florida	1,130,675	1,684,797	26.4	2,015,345	1,447,490	39.2	94.6	85.9	D 185,630	D 84,284	d 130,815	379,159	511,457	b	b
Gulf & Ship Island	1,244,001	1,215,806	d 7.0	1,164,308	946,081	23.1	103.0	77.8	13,440	D 102,545	d 213,911	38,858	597,456	6.0	100.7
Gulf, Mobile & Northern	50,353,827	1,118,495	11.2	1,299,632	914,797	42.1	104.5	81.8	227,351	188,647	d 272,931	225,844	558,338	b	71.5
Illinois Central	50,459,171	47,521,121	6.0	45,974,503	41,918,653	9.7	91.3	88.2	207,221	2,004,465	d 309,766	263,819	16,282,174	27.9	84.0
Louisville & Nashville	1,433,646	42,904,794	17.4	45,204,450	34,968,357	29.3	89.6	81.3	4,030,054	3,585,949	d 2,025,589	246,545	17,310,495	46.9	56.1
Louisville, Henderson & St. Louis	474,912	1,259,193	13.9	1,164,509	964,664	20.7	81.2	76.6	7,539,182	182,501	d 3,953,233	7,189,808	343,916	120.2	98.6
Mississippi Central	7,156,696	570,737	d 16.8	543,693	432,508	25.7	114.5	75.8	195,594	D 67,534	d 13,093	7,643,795	309,216	b	128.8
Mobile & Ohio	9,061,398	6,685,586	6.7	7,717,534	6,469,568	19.3	108.1	96.8	171,335	D 973,672	d 238,869	151,863	2,587,478	b	125.5
Nashville, Chattanooga & St. Louis	3,095,768	9,054,654	0.1	8,909,015	7,581,932	17.5	98.3	83.7	153,650	3,521	d 1,127,322	136,541	3,182,089	0.3	13.4
New Orleans & Northeastern	1,054,885	2,876,982	7.6	2,907,029	2,190,107	32.7	93.9	76.1	1,499,968	162,778	d 1,496,447	1,146,968	1,204,992	30.6	106.8
New Orleans Great Northern	2,981,225	1,007,589	4.7	1,039,140	737,293	40.8	98.5	73.2	527,748	D 55,136	d 364,970	1,405,115	575,952	b	99.2
Norfolk Southern	558,791	2,636,355	13.1	2,981,987	2,297,317	29.8	100.0	87.1	247,509	D 108,384	d 302,645	532,088	1,166,991	b	97.3
Northern Alabama	6,376,312	563,629	d 0.3	547,580	421,373	29.9	98.0	74.8	172,760	22,965	d 281,144	254,323	151,814	34.3	33.5
Richmond, Fredericksburg & Potomac (Inc. W. S.)	20,449,364	4,426,491	44.0	3,599,576	2,629,765	36.9	90.5	59.4	4,234	2,630,424	18,731	515,308	1,105,807	371.0	6.3
Seaboard Air Line	59,052,113	17,437,963	17.3	18,508,867	14,606,307	26.7	92.0	83.8	1,484,843	1,266,129	1,145,581	67,037	6,497,025	44.1	209.4
Southern	818,040	54,134,611	9.1	54,298,170	40,163,273	35.2	104.8	74.2	1,587,028	2,067,172	d 320,899	709,076	18,653,893	25.1	55.3
Southern Railroad in Mississippi	1,241,959	623,300	31.2	856,926	594,247	44.2	95.3	89.5	10,826,850	D 102,308	d 8,759,678	2,868,891	6,990	b	131.4
Tennessee Central	1,302,076	1,236,347	0.5	1,460,113	1,106,602	31.9	117.6	72.8	D 110,671	D 303,669	17,363	8,237,000	162,734	b	b
Western Alabama	1,241,959	1,135,486	14.7	1,000,661	826,873	21.0	76.9	81.4	D 43,901	263,225	d 259,768	3,087	288,238	206.8	206.2
Yazoo & Mississippi Valley	11,035,258	9,754,221	13.1	8,997,372	7,936,444	13.4	81.5	80.4	262,492	1,614,698	733	71,858	3,862,318	94.7	68.9
Total, Southern Region	305,876,829	270,125,864	13.2	274,216,785	217,145,662	26.3	89.6	80.4	1,175,737	438,961	127,277	1,705,484			
NORTHWESTERN REGION									19,735,414	42,335,278	d 22,599,864	44,848,991	101,567,115	44.0	94.4
Chicago & North Western	62,550,324	51,059,520	20.6	55,453,562	48,639,742	14.0	88.7	93.8							
Chicago Great Western	9,812,065	8,410,491	16.7	9,117,655	7,889,543	15.6	92.9	93.8	3,930,377	2,541,657	1,388,720	10,244,872	23,201,016	38.4	13.6
Chicago, Milwaukee & St. Paul	69,693,453	55,916,757	23.6	65,231,927	54,548,940	19.6	94.4	97.6	D 113,963	d 77,813	D 15,558	1,304,156	2,953,450	b	b
Chicago, St. Paul, Minneapolis & Omaha	12,640,379	10,652,859	18.7	10,876,684	9,670,114	12.5	86.0	90.8	955,100	1,824,806	D 1,938,769	12,340,456	27,946,771	43.8	b
Duluth & Iron Range	3,339,757	2,806,855	19.0	2,063,673	2,148,522	d 3.9	61.8	76.5	1,141,043	437,631	517,469	2,179,056	4,934,790	109.7	57.9
Duluth, Missabe & Northern	8,306,020	5,591,885	48.4	3,410,005	3,406,499	0.1	41.1	60.9	4,758,960	538,598	602,445	1,040,005	2,355,242	210.4	89.8
Duluth, South Shore & Atlantic	2,151,128	1,975,264	8.9	2,081,627	2,050,335	1.5	96.8	103.8	D 97,613	2,727,456	D 245,342	2,261,743	5,122,051	b	b
Elgin, Joliet & Eastern	10,254,004	8,051,735	27.2	7,711,477	6,584,855	17.1	75.2	81.7	2,038,362	147,729	662,071	262,574	594,637	161.3	52.4
Great Northern	47,272,184	39,057,427	21.0	41,686,831	37,752,667	10.4	88.2	96.7	2,688,266	1,376,292	D 356,407	1,263,652	2,862,177	21.2	b
										3,044,673		12,668,869	28,690,511		

Condensed Income Account

FOR 6 MONTHS ENDED JUNE 30, 1919, COMPARED WITH SAME PERIOD OF PREVIOUS YEAR—Continued

Railroad	Operating revenues			Operating expenses			Operating ratio		Net federal income (See notes)			Standard return (See notes)		Per cent net federal income to standard return, this period (See notes)	
	This year	Last year	Increase or decrease Per cent	This year	Last year	Increase or decrease Per cent	This year	Last year	This year	Last year	Increase or decrease	For this period	For entire year	This yr.	Last yr.
NORTHWESTERN REGION.															
Mineral Range	415,060	538,086	d 22.8	444,379	522,597	d 15.0	106.9	97.1	D 38,163	D 3,682	d 34,481	65,102	147,432	b	b
Minneapolis & St. Louis	6,021,754	5,365,419	12.2	6,091,185	5,159,218	18.1	101.2	96.2	D 382,279	151,280	d 533,559	1,165,682	2,639,857	b	13.0
Minneapolis, St. Paul & S. S. Marie	18,797,824	13,537,588	40.2	16,290,811	13,266,623	22.8	85.8	98.0	1,125,745	D 132,852	1,259,597	4,657,426	10,547,429	24.2	b
Northern Pacific	45,370,225	42,023,234	8.4	36,706,335	32,930,755	11.5	80.6	78.4	6,223,552	8,161,591	d 1,938,039	13,272,605	30,057,760	46.9	61.5
Oregon-Washington R. R. & Nav	12,765,153	11,628,748	9.8	10,868,011	9,009,597	20.6	85.1	77.5	823,582	1,659,804	d 836,222	1,995,609	4,519,352	41.3	83.2
Spokane, Portland & Seattle	3,378,203	3,805,947	d 11.2	2,581,966	2,130,201	21.2	76.4	56.0	583,412	1,289,252	d 705,840	826,213	1,871,083	70.6	156.0
Total, Northwestern Region	312,544,133	261,231,815	19.6	270,616,028	235,710,208	14.8	86.6	90.2	23,544,011	13,771,526	9,772,485	65,548,222	148,443,558	35.9	21.0
CENTRAL WESTERN REGION															
Arizona Eastern	1,875,672	2,179,565	d 13.9	1,458,021	1,327,873	9.8	77.7	60.9	318,534	672,151	d 353,617	548,640	1,242,475	58.1	122.5
Atchison, Topeka & Santa Fe	81,036,315	75,433,555	7.4	65,614,006	53,514,534	22.6	81.0	70.9	11,740,551	18,683,563	d 6,943,012	17,571,152	39,792,449	66.8	106.3
Chicago & Alton	12,080,990	10,118,751	19.4	11,163,620	9,273,460	20.4	92.4	91.6	D 52,058	D 17,900	d 34,168	1,403,448	3,178,315	b	b
Chicago & Eastern Illinois	11,510,535	11,250,236	2.3	11,918,747	10,740,773	11.0	103.5	95.5	D 1,266,369	325,913	d 1,592,282	1,300,866	2,946,001	b	25.1
Chicago, Burlington & Quincy (inc. Q. O. & K. C.)	68,989,107	62,574,001	10.3	56,449,347	52,061,803	8.4	81.8	83.2	8,694,713	7,312,620	1,362,093	14,744,058	33,390,080	59.0	49.6
Chicago, Peoria & St. Louis	768,749	1,038,031	d 25.9	1,165,684	1,164,634	0.1	151.6	112.2	D 456,653	D 217,515	d 239,138	56,318	- 127,540	b	b
Chicago, Rock Island & Pacific (inc. C. R. I. & G.)	51,259,363	45,955,939	11.5	46,147,069	40,038,582	15.3	90.0	87.1	1,980,447	2,996,378	d 1,015,931	7,013,850	15,883,891	28.2	42.7
Chicago, Terre Haute & Southeastern	1,847,297	1,993,360	d 7.3	2,031,588	2,085,986	d 2.6	110.0	104.6	D 260,408	107,966	d 368,374	407,474	922,785	b	26.5
Colorado & Southern	6,190,812	5,733,137	8.0	5,120,441	4,365,286	17.3	82.7	76.1	727,164	1,004,572	d 277,408	1,095,629	2,481,212	66.4	91.7
Denver & Rio Grande	14,098,588	13,519,245	4.3	11,955,027	10,784,486	10.8	84.8	79.8	1,701,782	2,511,998	d 810,216	3,673,587	8,319,377	46.3	68.4
Denver & Salt Lake	1,202,985	877,258	37.1	1,715,978	1,162,312	47.6	142.6	132.5	D 560,215	D 350,596	d 209,619	156,002	353,290	b	b
El Paso & Southwestern	6,239,429	7,311,963	d 14.7	4,054,552	4,348,213	d 6.8	65.0	59.5	1,812,044	2,596,103	d 784,059	1,830,353	4,145,102	99.0	141.9
Fort Worth & Denver City	4,969,915	3,511,951	42.1	3,595,222	2,850,180	26.1	72.1	81.2	1,252,558	637,727	614,831	835,179	1,891,386	150.0	76.4
Los Angeles & Salt Lake	8,386,096	6,559,555	27.8	6,534,875	5,266,770	24.1	77.9	80.3	1,306,376	822,909	483,467	1,507,852	3,414,751	86.6	54.6
Northwestern Pacific	2,741,499	2,400,215	14.2	2,416,685	1,742,366	38.7	88.2	72.5	184,803	536,653	d 351,850	545,383	1,235,101	33.9	98.4
Oregon Short Line	17,055,943	15,155,307	12.5	12,995,332	9,963,680	30.4	76.2	65.7	3,081,057	4,442,078	d 1,361,021	4,502,579	10,196,750	68.4	98.7
Southern Pacific (Pacific System)	76,001,926	66,900,147	13.6	62,857,373	54,245,973	15.9	82.7	81.1	9,180,070	10,202,798	d 1,022,728	15,972,185	36,171,354	57.5	63.9
Toledo, Peoria & Western	785,564	698,601	12.4	856,075	745,129	14.9	109.0	106.7	D 122,610	D 5,053	d 117,557	70,536	159,740	b	b
Union Pacific (inc. St. J. & G. I.)	50,849,045	41,320,331	23.1	35,545,877	27,982,337	27.0	69.9	67.7	13,849,645	11,759,180	2,090,465	10,630,277	24,073,820	130.3	110.6
Western Pacific	5,358,386	4,984,635	7.5	4,718,542	3,540,855	33.3	88.1	71.0	309,571	1,068,961	d 759,390	839,137	1,900,350	36.9	127.4
Total, Central Western Region	423,268,216	379,515,783	11.5	348,314,061	297,205,032	17.2	82.3	78.3	53,420,992	65,090,506	d 11 669,514	84,704,505	191,825,769	63.1	76.9
SOUTHWESTERN REGION															
Fort Worth & Rio Grande	668,087	520,074	28.5	754,233	504,593	49.5	112.9	97.0	D 123,034	D 61,379	d 61,655	574	1,301	b	b
Gulf Coast Lines	4,047,649	3,722,915	8.7	3,331,629	2,737,799	21.7	82.3	73.5	421,321	845,326	d 424,005	486,264	1,101,216	86.7	173.8
Gulf, Colorado & Santa Fe	8,856,832	8,873,413	d 0.2	7,992,801	6,835,061	16.9	90.2	77.0	317,684	1,295,974	d 978,290	1,248,857	2,828,218	25.4	103.8
International & Great Northern	6,757,763	6,234,562	8.4	7,255,669	5,367,064	35.2	107.4	86.1	D 780,327	553,637	d 1,333,964	615,967	1,394,946	b	89.9
Kansas City, Mexico & Orient	1,032,519	1,151,590	d 10.3	1,734,724	1,388,014	25.0	158.6	120.5	D 735,961	D 269,493	d 466,468	66,236	150,000	b	b
Kansas City Southern (inc. T. & F. S.)	7,628,066	7,795,633	d 2.1	6,744,557	5,395,558	25.0	88.4	69.2	343,602	1,823,716	d 1,480,114	1,561,138	3,535,427	22.0	116.8
Louisiana & Arkansas	1,015,989	850,013	19.5	1,035,800	637,838	62.4	102.0	75.0	D 104,274	154,834	d 259,108	180,155	407,987	b	85.9
Midland Valley	1,874,546	1,598,487	17.3	1,494,291	1,107,515	34.9	79.7	69.3	287,380	443,137	d 155,757	196,210	444,346	146.5	225.8
Missouri & North Arkansas	703,348	682,823	3.0	1,069,156	642,231	66.5	152.0	94.1	D 453,702	D 6,074	d 447,628	77,275	175,000	b	b
Missouri, Kansas & Texas	15,609,924	14,192,320	10.0	14,029,525	12,785,153	9.7	89.9	90.1	1,313,477	1,387,389	d 73,912	2,584,876	5,853,831	50.8	53.7
Missouri, Kansas & Texas of Texas	11,371,309	8,749,770	30.0	10,779,144	8,766,119	23.0	94.8	100.2	D 97,709	D 1,326,049	1,228,340	274,556	621,773	b	b
Missouri, Oklahoma & Gulf	610,442	860,133	d 29.0	1,020,213	1,050,708	d 2.9	167.1	122.2	D 461,488	D 312,079	d 149,409	D 36,917	D 83,603	bc	bc
Missouri Pacific	42,039,700	40,098,953	4.8	38,940,594	33,277,643	17.0	92.6	83.0	1,074,400	3,922,205	d 2,847,805	6,273,302	14,206,814	17.1	62.5
St. Louis-San Francisco	35,480,668	30,151,168	17.5	28,704,629	25,515,301	12.5	80.9	84.6	5,245,264	2,696,333	2,548,931	6,045,188	13,690,213	86.8	44.6
St. Louis-San Francisco & Texas	657,350	721,479	d 8.9	682,815	553,135	23.4	103.9	76.7	D 154,891	D 3,762	d 151,129	D 144,408	D 327,035	bc	bc
St. Louis Southwestern	6,128,746	6,185,564	d 0.9	4,857,231	3,980,738	22.0	79.3	64.4	999,245	1,984,025	d 984,780	1,481,798	3,355,749	67.4	133.9
St. Louis Southwestern of Texas	2,925,294	3,158,774	d 7.4	3,605,863	3,212,351	12.2	123.3	101.7	D 754,805	3,481	d 758,286	245,144	555,165	b	1.4
San Antonio & Aransas Pass	1,940,859	1,908,809	1.7	2,501 640	2,046,322	22.3	128.9	107.2	D 637,724	D 176,656	d 461,068	164,728	373,052	b	b
Sunset Lines (inc. H. & T. C. and H. E. & W. T.)	25,322,773	24,967,423	1.4	20,967,754	17,184,773	22.0	82.8	68.8	3,187,219	6,118,041	d 2,930,822	3,754,679	8,503,021	84.9	162.9
Texas & Pacific	16,344,972	11,649,270	40 3	14,511,406	9,465,276	53.3	88.8	81.3	812,536	1,456,840	d 644,302	1,813 719	4,107,432	44.8	80.3
Trinity & Brazos Valley	587,565	544,871	7 8	888.341	609,210	32.7	151.2	122.8	D 378,412	D 126,985	d 251,427	22,079	50,000	b	b
Vicksburg, Shreveport & Pacific	1,532,703	1,171,510	30.8	1,301,363	904,794	43.8	84.9	77.2	177,387	235,463	d 58,076	149,228	337,948	118.9	157.8
Wichita Falls & Northwestern	926,514	471,974	96.3	977,577	619,786	57.7	105.5	131.3	D 148,601	D 238,655	90,054	64,135	145,245	b	b
Total, Southwestern Region	194,063,618	176,271,528	10.1	175,180,955	144,646,982	21.1	90.3	83.1	9,348,589	30,399,269	d 11,050,660	27,306,108	61,838,684	34.2	74.7
Grand total, all regions	2,324,499,304	2,055,966,861	13.1	2,056,720,484	1,790,249,693	14.9	88.5	87.1	156,827,416	151,319,830	5,507,586	393,975,779	892,215,908	39.8	38.4

"Net Federal Income" represents net operating revenue, minus railway tax accruals and uncollectible railway revenue, plus or minus the net balance for equipment rents, joint facility rents, and miscellaneous federal income items (if any). Items of prior revenue or expense, commonly called "lapovers," have been excluded.

Standard return for this period is based on the proportion which the railway operating income of all Class 1 roads in the same period of the three years of the test period bore to the total railway operating income of those roads during the test period. The average for all roads combined is applied to each road as well as to totals. This may not exactly represent this period's proportion for individual roads, but provides a fair distribution by totals, and is closer to the facts for individual roads than the former method of applying one-twelfth of standard return to each month. The proportions to be used for each month are:

January	6.228%	May	8.568%	September	10.113%
February	5.257	June	9.149	October	10.436
March	7.517	July	8.363	November	9.222
April	7.438	August	9.643	December	8.066

b—Per cent not computed as net federal income this year is a deficit.

c—Per cent not computed as standard return is a deficit.

d—Decrease.

D—Deficit.

therefore understated to the amount of $98,993,529. The expenses for the first six months of 1919 contain retroactive payments applicable to prior months and are overstated to the amount of $16,166,301.

The operating ratio for the six months' period was 88.5 as compared with 87.1 in the corresponding period of last year and 70.25 for the average of the first six months of the test period.

For the month of June the number of roads having deficits was less than for the six months' period, only 45, while 33 earned their standard return. The percentage of the standard return earned by all roads for June was 64. The Ohio-Indiana district was the only district in which the roads as a whole earned the standard return. Its percentage was 100.7. The lowest percentage was in the Pocahontas region, 25.3 per cent.

The figures by regions and by roads are given in the tables on the three preceding pages.

New Instruction Car for the Southern Pacific

Equipment Includes Apparatus for Presenting Operating Problems Graphically to Employees

THE INSTRUCTION of railroad employees, both new and old, is gradually assuming a more important function in the successful operation of railroads of this country. Indicative of this trend is the construction and equipment of a new instruction car recently at the Southern Pacific shops at Sacramento, Cal. The designers and builders of this car believe that this "academy on wheels" represents an advance both in car construction and in facilities for carrying on educational work among railroad men. The car is equipped with modern devices for the instruction and examination of railroad employees and facilities are available for conducting practically every test found in the operating curriculum.

Exterior View of the Instruction Car

The car itself was originally an observation car of the six-wheel truck type, weighing approximately 135,000 lbs., which was in service on the Southern Pacific. The length over end sills is 72 ft. 6 in., with steel under frame and trucks, and the car equipment includes a vapor heating system and both electric and Pintsch gas light, so arranged that connections may be established with city power mains where stops are made for any considerable length of time. Approximately one-half of the car has been converted into a class room with a total seating capacity of 30. The other half of the car contains three staterooms, one for the chief instructor and two smaller compartments each containing a standard Pullman section for his assistants. The observation end of the car has been converted into a commodious office, which is approximately 12 ft. in length and contains, besides desks, facilities for installing another berth to take care of extra assistants. In addition to these conveniences in the living end of the car, a metal-lined shower bath and adequate clothes lockers have been installed for the use of the examiners.

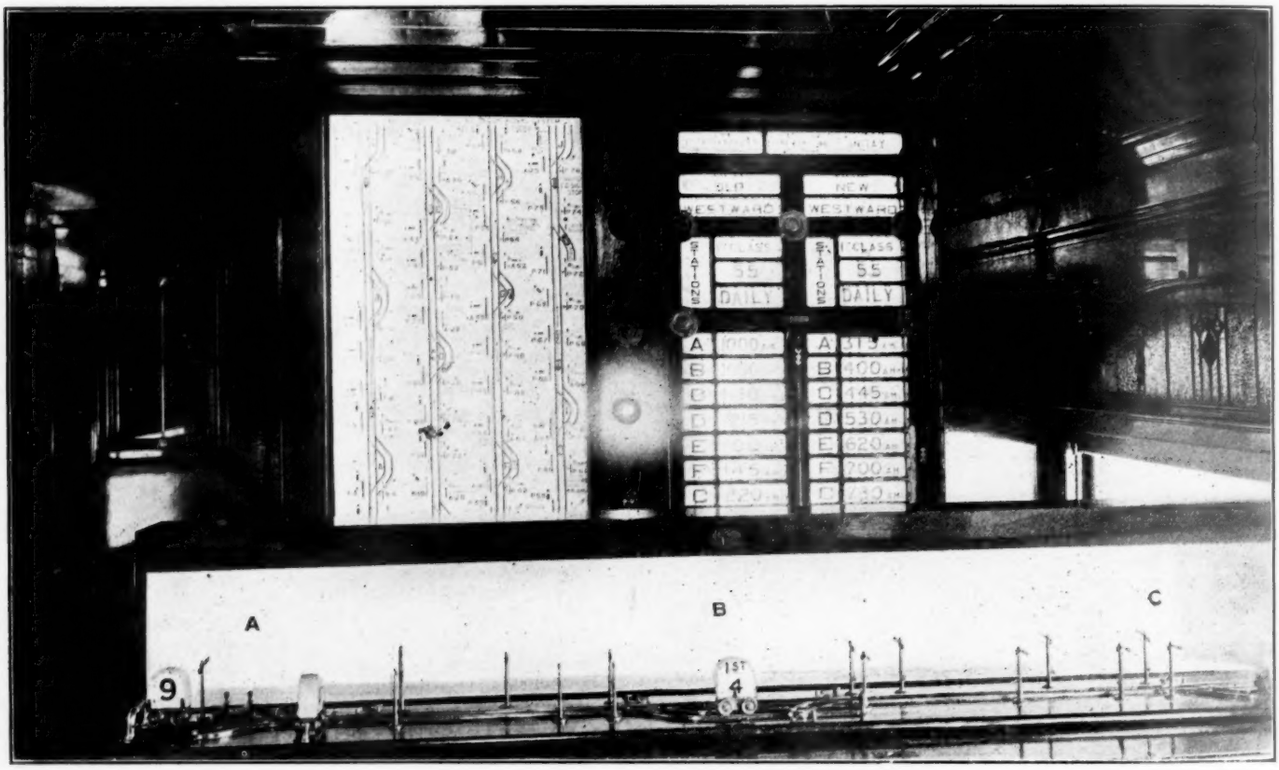
The class room is equipped with a complete automatic block signal working model in which the signals are operated from storage batteries. A display board provided in the

bulkhead near the center of the car enables charts to be effectively exhibited and illuminated, by the side of which there is also an apparatus for displaying various conditions under which trains may be operated when a new time table becomes effective. In addition to this, a projecting machine has been installed immediately behind the display board and apparatus by means of which train orders may be flashed upon a screen placed in front of the display board. In conjunction with this apparatus problems are worked out on the miniature railroad on which practically every situation arising in actual practice can be duplicated.

The car is intended to serve the territory of about 9,000 miles comprising the Pacific system, and to make possible the examination and instruction of approximately 10,000 employees on each round trip. In traversing this territory stops are made at points where train crews lay over, making it possible for the men to attend at either end of their run. Where telegraphers are employed the car is halted the required time for thorough examination and instruction. The local examiner of each division questions employees entering the service or those recently promoted to new positions. However, all employees are required to attend the examinations conducted in the car. In this manner a conductor or engineer obtains the benefit of questions and answers between the despatcher and the examiner and brakemen and firemen learn the problems that confront the conductors and engineers.

As the car passes over each division examiners check all train orders used by the conductors and engineers to see if they are in proper form and legible. Attention is directed to any irregularities and the assembled class receives instructions immediately concerning the necessity for correction. A similar check is made upon the despatchers' train order books, train sheets, checks of train register and clearance cards.

The division officers whose division the instruction car is operating find it to their advantage to be present at these examinations in order to familiarize themselves with constantly changing instructions, and in this manner obtain a uniform understanding of the company's practices. The visualization of problems presented graphically to the men in the class room has made instruction work more interesting to all concerned.



Interior of Car, Showing Automatic Block Signal Model

Grand Central Terminal Handled 189,838 Passengers

On Monday, August 18, the elevated and subway service in New York City, Boroughs of Manhattan and the Bronx, was completely discontinued. The surface lines were entirely inadequate to handle the morning and evening traffic from the Bronx and the northern end of Manhattan Island, and the New York Central and, to a lesser extent, the New York, New Haven & Hartford, were called upon to furnish transportation up to the limit of their capacities.

What may be properly called the city traffic as distinguished from suburban passenger traffic begins at about 300th street or just south of the junction of the New York, New Haven & Hartford and the New York Central. To the east of the New York Central tracks are two double-tracked subways, and a little further south a double-track elevated. To the west there are also two double-track subways, and a little further south a double-track elevated. From Woodlawn Junction into Grand Central Terminal the New York Central has four tracks used by both the Central and the New Haven.

On a normal Monday, about 175 through trains and 300 locals are handled into and out of the terminal. The normal number of passengers on Monday into and out of the station is about 100,000.

The strike on the subway and elevated was declared on Sunday on a comparatively few hours' notice. On Monday,

the New York Central handled 26 special multiple unit trains of 10 cars each during the morning rush period and all of the regular trains were built up to the full 10-car limit. The average movement of passengers into the station is about 20,000 during a morning's rush period and on Monday, 62,733 passengers were handled, an increase of over 200 per cent. During the 24 hours of Monday, 50 special trains in all were handled into the station but after 10 o'clock they were not well filled and probably not more than 8,000 to 10,000 people were handled into the station over and above the normal movement.

The evening rush period began much earlier than normally and this was of great help in taking care of the crowds. By 4:15 the lower level of the Grand Central Terminal, from which the suburban trains leave, was crowded with people, and police protection with crowds roped back from the entrances to the ramps was necessary until 8:15. During this period of four hours, 25 additional trains with about 30,000 people were sent out from the Grand Central Terminal in addition to the regular outbound suburban and through traffic movement. Ordinarily, the New York, New Haven & Hartford makes no passenger stops south of Mt. Vernon, so that the extra trains were all New York Central trains. Under normal conditions the Grand Central Terminal, between five o'clock and seven o'clock, handles a very heavy movement of outbound trains. For instance, on the Hudson Division there is a five o'clock, 5:03, 5:30 and a six o'clock express, and there are 5:06, 5:15, 5:19; 5:22, 5:34 and 5:51 locals and local expresses. On the Harlem Division there are 5:09 and 5:23 expresses, two 5:12 trains, 5:26, 5:37, 5:38, 5:46, and 5:56 local and local express trains; and on the New York, New Haven & Hartford there are the five o'clock, 5:03, 5:10, 5:13, 5:19, 5:29 and 5:32 express trains and 5.06, 5:16, 5:25, 5:41, 5:44 and 5:57 locals. All of these trains, of course, leave the Grand Central Terminal.

The Putnam Division of the New York Central terminates at 129th street and, therefore, much of the traffic of this division was also thrown on to the Hudson and Harlem Divisions.

The Grand Central Terminal is called upon to handle very heavy business on the days of the Yale-Harvard and Yale-Princeton foot ball matches at New Haven, on the day preceding a holiday, on the day following Labor Day, etc., but the crowds during these days are distributed over a period of hours and, furthermore, are of a class which can be handled in an orderly manner. On the other hand, on Monday the crowd which was thrown upon the New York Central was particularly difficult to handle; in the first place, because the large proportion were foreigners or people entirely unused to steam railroad travel; and, secondly, there was included in the crowd a considerable element of an unruly nature. The travel in the subway with the jamming of rough element into the doorways after the cars are completely filled engenders in this class of traffic a disregard for the rights of others which made the crowd on Monday night at the Grand Central somewhat dangerous for women or children to venture into. Many of the passengers did not know the names of the stations to which they desired to go, knowing simply the name of the elevated or subway station at which they ordinarily got off. Extra booths were provided, sufficient to handle the crowds as quickly as they could be handled into the trains, but the confusion of mind of the passengers was so great that tickets were lost between the ticket booth and the entrance to the train, groups drifted about, pushed hither and thither by the crowd in a seemingly aimless state of mind. One of the New York Central employees who commutes out of Grand Central picked up, on his way to his train, between 20 and 30 tickets that had been dropped in the confusion. The ticket sellers were generally able to tell passengers what station they wanted tickets to when the subway or elevated station was named, but this took time and made the ticket selling slower than it would have otherwise been.

Fifty extra policemen were on duty at the entrance to the lower level and ropes were stretched across between the pillars midway through the length of the lower level concourse, and passengers were admitted through the ropes as trains were placed ready for loading.

The loop was used exclusively for extra trains and regular trains were run into the stub tracks. Nevertheless, great care was used to have regular commutation and suburban trains run out from platforms as nearly as possible to those from which they ordinarily depart. No train was moved from its regular platform further than would permit a passenger standing at the entrance to the regular platform to see the sign either to the right or left of him of his train.

Notwithstanding the confusion among the extra passengers there was comparatively little difficulty experienced by the regular commuters and the average detention of the regular trains on this Monday was only 2:07 per train.

Miles Bronson, general superintendent and manager of the terminal, and G. H. Wilson, superintendent, were in charge of the situation during the entire period.

The accompanying table shows the train and car movement and number of passengers handled on days of particularly heavy business, on a normal day (August 11, 1919) and on Monday, August 18, the day of the strike:

NOVEMBER 25, 1916
(Yale-Harvard Football Game at New Haven and Saturday Before Thanksgiving)

	Trains	Cars	Passengers
Through	225	2,025	
Local	442	2,655	
Total	667	4,680	129,486

AUGUST 31, 1918
(Labor Day Travel)

	Trains	Cars	Passengers
Through	205	1,845	
Local	385	2,160	
Total	590	4.005	104,286

JULY 3, 1919

	Trains	Cars	Passengers
Through	215	1,935	
Local	421	2,450	
Total	636	4,385	130,197

AUGUST 11, 1919

	Trains	Cars	Passengers
Through	170	1,530	
Local	296	1,804	
Total	466	3,334	96,370

AUGUST 18, 1919

	Trains	Cars	Passengers
Through	175	1,575	
Local	449	3,330	
Total	624	4,905	189,839

On a Branch Line in Russia

Doings of the United States Railroad Administration

Director General and Bituminous Coal Operators Engage in Controversy Concerning Possible Coal Shortage

WASHINGTON, D. C.

THE RAILROAD ADMINISTRATION and the bituminous coal operators are again engaged in the polite and preliminary skirmishes of a controversy as to the responsibility for a possible coal shortage this winter. The National Coal Association has been preparing its alibi for some time in an effort to create an impression that the railroads are already failing to supply coal cars, while Director General Hines takes the position that if the public will not place its orders in advance at the present prices for coal and the railroads are called upon to handle an unduly large proportion of the year's supply in the later months of the year, any resulting shortage will not be the fault of the railroads.

In reply to a Senate resolution introduced by Senator Pomerene, inquiring as to the past, present and future supply of coal cars in relation to the demand, Mr. Hines says that if the demand to be supplied is as large as has been predicted by the National Coal Association he foresees difficulties not only in the transportation, but also in the production of that amount of coal during the latter part of the year. However, he says, there is no accurate information available to support the estimate that the requirements for 1919 will amount to 500,000,000 tons and he does not anticipate any shortages in transportation which will be "in any sense exceptional or abnormal," or which will justify "oppressive prices" for coal. He points out that up to date any shortage in coal production must be attributed not to car shortage, but to "no market," which he strongly hints is due to the high prices charged, and he suggests that "in the event any Congressional investigation should be undertaken it would be expedient to ascertain the extent to which the absence of demand for coal has been due to the maintenance of high prices which discouraged the demand."

Opportunity to suggest that Congress might do something to protect the public from excessive coal prices was given to Mr. Hines by the Senate's question as to what, if any, further action by Congress is required in order to meet the demands for the transportation of coal. He does not believe, apparently, that Congress can be of much assistance in the practical matter of producing and transporting the coal, but he indicates an opinion that it might prevent the coal people from convincing the public that high prices are justified by car or transportation shortage.

The National Coal Association has until recently been spending large sums in advertising, urging the placing of early orders for coal and laying stress on the few scattering instances of car shortage that have developed thus far and the prospects for a real shortage later on. Evidences of its propaganda have been seen also in numerous resolutions urging the Railroad Administration to hasten the repair of coal cars and to put into service the unallocated new standard cars. Mr. Hines indicates a belief that this represents an effort to create a psychological condition that will support high prices by hanging the responsibility on the Railroad Administration. The Senate resolution asked five questions. To these Mr. Hines replied in part as follows:

"The number of open-top cars in the United States is approximately 1,067,000, of which over 99 per cent are owned by federal operated railroads and all of which are, generally speaking, subject to interchangeable use on federal operated railroads and non-federal operated railroads. Open-top cars are commonly known as coal cars, though some open-top cars are not suitable for coal loading.

"At the present time something less than 10 per cent of these cars are awaiting repairs, either light or heavy. A large number of the cars so awaiting repairs are so held for very light repairs which can be speedily applied. During federal control the methods of classification to determine what cars need repairs have been made much more strict, with the result that large numbers of cars are now shown as needing repairs which in former years have not been so shown. The Railroad Administration program of car repairs will, it is expected, gradually reduce the proportion of cars awaiting repairs despite the stricter classification.

"The total result is that there are now approximately 900,000 open-top cars in the United States ready for use without any repairs, and about 775,000 of these open-top cars are suitable for coal loading. This type of equipment is, however, regularly used for a very heavy tonnage of other bulk commodities which cannot be handled except in open-top cars. Adequate transportation for many of these commodities, particularly those used in highway construction and repairs, general building, and railroad ballast and improvement work, now requires a large number of these cars. Those actually in current use for the transportation of coal number approximately 600,000. It must also be remembered that box cars have always been used to an important extent in some parts of the country for transporting coal.

"During the first five months of the present year open-top cars were regularly available greatly in excess of shippers' orders for the same. The maximum was reached in February and March when the surplus of open-top cars daily available amounted to the extraordinary totals of 187,339 and 192,933, respectively. There has at no time been any shortage of cars for anthracite coal loading.

As to bituminous coal there occurred in June a slight shortage in Southern West Virginia, Eastern Ohio and Western Pennsylvania, due to an accumulation of cars in lake coal trade, and increased detention of such cars under load at Lake Erie ports awaiting vessels, and also to a strike of railroad shopmen on the Norfolk & Western Railroad. Since about July 15, coincident with a marked upward trend in production, there have been some shortages of cars for loading with bituminous coal in some producing districts, mainly in Eastern Kentucky, Virginia, West Virginia, Maryland and Pennsylvania, and usually in districts producing the higher grades of coal. A strike of marine workers on coastwise ships, floods and other operating difficulties have contributed to these shortages. Contemporaneously, however, there still exist slight surpluses of open-top cars in some sections, principally in the West.

"Exhibit "B" shows comparatively for 1919, as far as available, the weekly reports by the Geological Survey of percentage of full time operation lost by bituminous coal mines in the United States, and the cause of such loss, and indicates that up to July 12 the loss on account of 'car shortages' was a very minor one, and relatively much less than that from 'mine causes' and 'no market.'

"The purchase of 45,000 cars available for coal loading was arranged for by the director general for delivery to railroads under federal control. All these cars have been or will be put in service as rapidly as practicable, whether transferred to the several railroad companies or not. Thirty-seven thousand have already been built, of which 17,000 have been put in service. The remaining 20,000 already built are now being numbered and lettered and are being placed in service as fast as this work is being completed. The 8,000 not yet

built will be put in service as rapidly as they are constructed.

"Of the 45,000 cars available for coal loading thus purchased, 4,750 have not yet been assigned definitely to any one or more railroad companies; 32,800 cars have been assigned to various railroad companies and definitely accepted by them; the remaining 7,450 cars have been allocated to certain of the railroad companies, but up to this time these cars have not been definitely accepted, due to unwillingness of said companies to accept the cars. Mandatory orders to require the cars to be accepted have not been issued pending full opportunity for disussion with the companies, but the fact that in these instances the cars have not been accepted by the companies is not delaying the cars being put in service as rapidly as constructed.

"It is not believed that further action by Congress will aid in meeting the demands for the transportation of the coal which will be needed during the remainder of this calendar year. The matter is largely dependent upon practical conditions which will not be affected by legislation. A statement is appended showing some of the important conditions in this respect and indicating that if the demand to be supplied is as large as has been predicted by the National Coal Association, there promises to be not only substantial difficulties in the transportation of coal, but also in the production by the mines of the coal which can be transported. The transportation difficulties will not be principally or primarily a shortage of cars, but the fact that the entire railroad plant—locomotives, cars, main tracks, terminal tracks, etc.—will be so occupied in handling a very large business of all sorts that an abnormal amount of any particular business such as coal will inevitably lead to congestion and delay. Nevertheless the unified control of the railroads will admit of specializing on the transportation of coal to whatever extent is absolutely necessary to prevent actual hardship.

"The great danger that confronts the public in this matter is that any shortage either in production by the mines or in transportation may be exaggerated so as to serve as a pretext for heavy increases in the coal prices which, in my opinion, are already high, generally speaking. It is worthy of serious consideration whether Congressional action can be taken to protect the public under these circumstances from excessive coal prices. In this connection it is important to remember that shortages in the production of coal by the mines and also in the transportation of coal by the railroads have not been exceptional in the fall and winter months, and any effort to stress unduly these conditions this year will probably be for the purpose of creating a pretext for increasing the prices of coal to the consuming public and the public should be given the benefit of reliable information on the subject.

"I believe it will be of specific advantage to the public if Congress would provide for an official inquiry by the proper branch of the government (presumably the Geological Survey in the Interior Department) to ascertain the probable demand for coal for the rest of the year, so as to determine the extent to which the predictions of an abnormal demand for coal are justified.

"It is important to emphasize that the relatively low production and purchase of coal up to the present date in this year have been due only to a very small extent to shortage of transportation and have been due to a very large extent to 'no market' or absence of demand for the coal, and in some parts of the country the lack of demand for coal still prevails. The weekly statements of the Geological Survey shows that beginning with January, 1919, and extending to June 14, 1919, the weekly loss of bituminous coal production on account of no market ranged from 32.6 to 46.5 per cent of working time, whereas, during the same period, the loss of time on account of car shortage ranged from only 0.6 of 1 per cent to a maximum of 4.8 per cent.

"The ability of the railroads to transport all the bituminous coal will, of course, be largely dependent upon the amount required. On that point no accurate information seems to be available. The National Coal Association, however, has advertised that 500,000,000 tons of bituminous coal must be produced in the calendar year 1919 to meet the requirements of the country. This estimate is just about the production of 1916, a year of great industrial activity, with normal winter weather and normal storage of coal to begin with, whereas in 1919 the year began with storage piles greatly exceeding normal, winter weather was the mildest in history and industrial activity, due to the readjustment of business following the war, has been at a very low ebb for months. Another element to be kept in mind in estimating the prospective tonnage for which transportation must be furnished is the export movement, of which much has been said to indicate that the tonnage will be large, but with respect to which there is little accurate information readily available.

"It may be noted that during the first six months of 1919 the coal consumption by railroads was about 26,000,000 tons less than in the corresponding period of 1918, during which latter year the fuel coal consumption by railroads aggregated 154,000,000 tons for the 12 months.

"If 500,000,000 tons shall be needed in the present year, the prospects are that its transportation will be accompanied by difficulties and, especially in view of the heavy business to be expected this fall, it will be exceedingly difficult to transport the amount required. These difficulties will not be due primarily or principally to the car shortage, but rather to the fact that an abnormal demand for coal will be concentrated into an unusually short period, when the necessary use of the railroads for other purposes will make it difficult to handle the coal.

"There is shown below a comparison of weekly production averages of bituminous coal for selected periods in 1917, 1918 and 1919:

Per week for the year 1917	10,611,230 tons
Per week, July 28-December 31, 1917	10,588,410 tons
Per week for the year 1918	11,216,000 tons
Per week, July 18-December 28, 1918	11,330,000 tons
Per week, July 28-November 16, 1918	11,900,000 tons
Per week, January 1-July 26, 1919	8,349,000 tons

"If it be assumed that 500,000,000 tons of bituminous coal must be produced during the present year, and we deduct the 250,000,000 tons already produced to July 26, it will be necessary during the remainder of the year to produce 11,340,000 tons weekly. When we consider what has been done in former years, and especially the maximum which was produced last year under the war influences which enlarged production as well as increased transportation, it is apparent that serious difficulties will be encountered both in the production and in the transportation of the amount of coal necessary in order to produce 500,000,000 tons for the entire calendar year 1919.

"It is highly important to remember that shortage in coal will largely be due to conditions of production having no reference to transportation. For example, in the case of anthracite coal the predominant cause of failure to produce up to the capacity of the mines is shortage of labor because there has been no shortage of transportation. The same condition is true with respect to bituminous mines in certain fields producing the higher grades of such coal, although at present shortage of transportation has become a factor in those fields. During the year 1918 extraordinary efforts were made by the government to obtain maximum production and to keep sufficient miners at work and to keep them working under sufficiently high pressure as a measure of patriotism to accomplish this result. The changed conditions in these respects this year may easily limit production in ways having no connection with transportation. These are matters, however, outside the field of the Railroad Adminis-

tration and are merely suggested without effort to discuss them exhaustively.

"It will be appropriate, however, for me to point out various conditions which last year favored the maximum transportation. During 1918 every transportation preference possible was accorded to coal traffic in order to obtain the maximum output.

"This was done as a matter of war necessity and under the authority of war legislation.

"Another important point which should be borne in mind is that the recent increase in bituminous coal production has been most pronounced in the eastern states where the higher grades of coal are mined. In a number of the eastern districts production has already reached, or closely approximates, that of the same period a year ago. If the production of the country as a whole is to be further increased, it must come largely from the central West and beyond. I would refer, in this connection, to the weekly reports of the Geological Survey on the production and shipment of coal, dated July 26 and August 2, 1919, particularly the former, which stated 'an average of 10,000,00 tons a week will not be exceeded until buying increases in the middle West.'

"Since the exceptional expedients mentioned had to be resorted to as war measures in order to move the average of 11,330,000 tons per week for the period of July 28 to December 28, 1918 (and the greater average of 11,900,000 tons per week in the most intense part of that period from July 28 to November 16, 1918), it is evident that without interfering with other business pressing for transportation, it is not likely to prove practicable under the modified conditions which have necessarily resulted from the termination of hostilities, to transport an average of 11,340,000 tons per week during the rest of the present calendar year (which would be necessary to bring up the total production and transportation for the entire year to the suggested 500,000,000 tons). As already stated, however, it is believed that the unified control will admit of such specialization on coal as may be necessary to prevent real hardship."

Representative Huddleston of Alabama, speaking in the House on August 13, charged the coal interests with carefully fostering a public impression of a shortage of coal cars as an excuse for increasing coal prices. He said the directors of the National Coal Association in June appropriated $50,000 for newspaper advertising, urging the public to "buy it now" because of present car shortages and prospects of worse shortages later, but that the people refused to buy very much at the prices charged and the propaganda plan was abandoned on July 10 with the idea of putting prices up still further when a shortage develops.

Mr. Huddleston read a letter from W. T. Tyler, director of operation of the Railroad Administration, in which he said:

"The fact is that the railroads are in much better shape than they were for several years preceding the war. We now have more than 4,000 locomotives in good repair stored and ready for service, whereas at no time during the two years preceding the war did any such condition exist. During the week of June 14, 1919, the average number of coal cars in bad order was only 9 per cent, and this 9 per cent included a large number of light coal cars actually withdrawn from service, but not taken off the books. The system adopted by the Railroad Administration classes cars as being in bad order when they are undergoing only light repairs as well as heavy repairs. While figures on the same basis are not available for the years preceding the war, there can be no question but what the situation in this respect is more favorable now than it was then."

The Senate on August 15 adopted a resolution presented by Senator Frelinghuysen directing the committee on interstate commerce to investigate the coal price situation.

During the week ended August 2, according to the report of the Geological Survey, the percentage of full-time output lost by reason of car shortage in the bituminous fields had increased to 14.5 per cent.

Following the receipt of Mr. Hines' letter by the Senate, on August 18, Senator Pomerene put into the record a number of telegrams from coal operators disputing Mr. Hines' statements and referring to serious shortages of cars for coal loading at several places, but these referred in most instances to dates later than those of the official statistics which Mr. Hines used. One of the Senator's correspondents sent photographs of long lines of empty, unstencilled new cars.

New Wage Demands

Enlargement of the Board of Railroad Wages and Working Conditions from six to twelve members for the consideration of the new general demands for increased wages which have been or are about to be presented to the Railroad Administration is now under consideration. Such an enlargement of the board has been proposed by the labor organizations, some of which are not now represented on the board. It now includes a representative of the trainmen, shop men and telegraphers, and three representatives of the management. It is proposed to add a representative of the engineers, clerks and maintenance of way employees and three more officials. Although no announcement has been made, it is understood that the case of the shop employees will probably be handled by the divisions of operation and of labor, as it has already been before the wage board, but the new demands will probably be referred to the enlarged board for investigation.

Several of the organizations that have prepared or have submitted demands are taking referendum strike votes which will give their officers full authority in case their demands are not complied with promptly or to their satisfaction.

Conferences between representatives of the Railroad Employes' Department of the American Federation of Labor and of the Railroad Administration on the demands of the shop crafts on wages and rules and working conditions were resumed on Monday, when the representatives of the shop employees, headed by B. M. Jewell, called on W. T. Tyler, director of the Division of Operation, and W. S. Carter, director of the Division of Labor, and reported that the unauthorized strikes of the shopmen on various railroads had come to an end. The Railroad Administration had received the same information from its operating officials and the labor committee held a further conference with the director general on Wednesday.

In order to meet the high cost of living the Brotherhood of Locomotive Firemen and Enginemen has decided that its members must have not only a large increase in wages, estimated at 35 to 65 per cent, but also the assistance of mechanical stokers on engines weighing over 200,000 lb., mechanical coal passers on locomotives of less weight, and power grate shakers and automatic fire door openers on all locomotives, besides being relieved of various odd jobs that some of them are now required to perform. The new wage scale to be presented to the Railroad Administration was adopted at a meeting of 300 general chairmen of the brotherhood at Cleveland last week. The firemen are the second of the four organizations of train service employees to present new wage demands, that of the Brotherhood of Trainmen having been presented in July. The engineers and conductors have not yet presented specific demands.

The status of the various wage proposals of the different organizations is as follows:

Federated Shop Craft Unions, affiliated with Railroad Employee' Department American Federation of Labor, and including the International Brotherhood of Blacksmiths and Helpers, the International Association of Machinists, International Brotherhood of Boilermakers, Iron

Shipbuilders and Helpers, the International Brotherhood of Electrical Workers, the Brotherhood of Railway Car Men and the Amalgamated Sheet Metal Workers International Alliance.—Demand submitted in January provides for increase from 68 cents to 85 cents per hour in minimum rate for machinists, blacksmiths, sheet metal workers, electrical workers, carmen and boilermakers, minimum of 60 cents an hour for helpers, 10 cents an hour increase for apprentices and differentials above the minimum rates for various classes of employees. Retroactive to January 1, 1919. Also asked uniform agreement on rules and working conditions which the director general has promised to grant. Hearings held before Board of Railroad Wages & Working Conditions, which submitted a divided report to Director General Hines on July 16, the three labor members recommending an increase from 68 cents to 80 cents for machinists, with proportional increases for other classes, and the three management members recommending against any general increase, although recommending certain readjustments. Negotiations with director general suspended on July 31 because of strikes on many roads and resumed this week after strikers had returned. Strike vote now being taken, returnable August 24.

Brotherhood of Railroad Trainmen.—Demand presented on July 1 provides for minimum rate of $150 per month of 26 days for brakemen, flagmen and baggagemen, and of $200 for conductors, with mileage scales ranging in passenger service from 3.85 cents to 4.55 cents per mile for flagmen, brakemen, baggagemen and assistant conductors, and 5.13 cents up for conductors; in freight service from 5.88 cents to 6.91 cents per mile for flagmen and brakemen and from 7.35 to 8.64 cents for conductors; time and one-half for overtime, Sundays and holidays; also rates for yard service and various special rules. Hearings held before Board of Railroad Wages and Working Conditions July 21 to July 31.

Brotherhood of Railway & Steamship Clerks, Freight Handlers, Express and Station Employees.—Demand presented provides for increase of 20 cents an hour, 44-hour week, and time and one-half for overtime, Sundays and holidays; retroactive to January 1, 1919.

Brotherhood of Locomotive Engineers.—Told President that unless cost of living is reduced it will be necessary to ask increased wages and served notice on Railroad Administration of probable request for general increase in near future.

Order of Railway Conductors.—No demand filed, but President L. E. Sheppard told Board of Railroad Wages and Working Conditions that if trainmen's demands are granted conductors should receive consideration based on brakesmen's ratio, being 66 2/3 per cent of conductors' rate, and that conductors should receive $9 a day in passenger service, $8.10 in through freight service and $8.88 in local freight service.

Brotherhood of Locomotive Firemen & Enginemen.—General chairmen in session at Cleveland formulated demand providing: Firemen and helpers in passenger service, $6.50 a day of 5 hours or less, 100 miles or less (Mallet locomotives, $7.20); through freight service on locomotives weighing less than 200,000 lb., $6.50 a day or 8 hours or less, 100 miles or less, on locomotives weighing over 200,000, $6.80; local or way freight service, mixed trains, mine runs, etc., minimum of 50 cents per 100 miles or less in addition to through freight rates; helper, pusher, transfer, work, wreck, construction, snow plow, circus, milk and unclassified service, through freight rates; yard service, $6.50 (Mallet $6.80), on Mallet locomotives in all except yard service, $7.20 a day; inside hostlers, $6.80 a day; outside hostlers, $7.20; hostlers' helpers, $6.50, eight hours or less, all coal burning locomotives to be equipped with power grate shakers and automatic fire door openers. All coal-burning locomotives in road service weighing over 200,000 lb., to be equipped with mechanical stokers and two firemen to be employed on each engine until so equipped. All locomotives weighing less than 200,000 lb. to be equipped with coal passers. Firemen to be relieved of cleaning locomotives, removing tools or supplies, loading coal, filling lubricators, etc.

Switchmen's Union of North America.—Demand presented to Board of Railroad Wages and Working Conditions in July for the following rates east of Rocky Mountains: night foremen, $8 a day; night helpers, $7.50; day foremen, $7.50; day helpers, $7; also differentials for mountain district and time and one-half for overtime Sundays and holidays.

United Brotherhood of Maintenance of Way Employees and Railway Shop Laborers.—New schedule presented August 11 includes rates for bridge and building, track, shop and signal employees, ranging from $200 to $270 a month for foremen, and including 90 cents an hour for pile driver, derrick, hoisting and steam crane engineers; 67 to 85 cents for painters, plasterers, carpenters, masons, bricklayers, etc.; 90 cents for powder men; 67 cents for stationary firemen; 65 cents for trackmen and track-walkers; 67 cents for trace apprentice and assistant section foreman; and 60 cents for crossing flagmen. Retroactive to January 1, 1919.

Demand is also made for time and one-half for overtime. A referendum strike vote is being taken, returnable on August 24.

Railway Signalmen of America.—At convention in Kansas City July 15 proposed further increase in wages, now being submitted to referendum vote of members. No demand yet filed with Railroad Administration.

In addition the 14 railroad labor organizations have filed with Director General Hines a general statement of their desire for further wage increase, which was published in last week's issue. The former demand of the four train service brotherhoods for time and one-half for overtime is also before the director general for consideration, and the trainmen and firemen have repeated it in their new demands.

Rail Bids Submitted

Bids were received by the Railroad Administration on August 16 from several steel companies on its inquiry for prices based on 100,000 tons of rail, Bessemer and open-hearth. In the absence from Washington of H. B. Spencer, director of the Division of Purchases, decision as to the quantity to be ordered was postponed but Director General Hines expected to take up the matter with him in a few days. It was understood that more than 100,000 tons might be ordered if the prices were satisfactory, and it has been reported that the proposals were at the same prices as were quoted on the order placed earlier in the year, $55 and $57.

Supplement to General Order No. 15

Director General Hines has issued Supplement No. 2 to General Order No. 15, by which Paragraph (2) of the order is changed to read as follows:

"2. Where existing industry tracks are not covered by written contracts, they shall be maintained and operated in accordance with the provisions stated in paragraph (1) hereof. In the absence of a written contract as to the maintenance of an industry track constructed prior to March 26th, 1918, the practice of the connecting carrier prior to federal control, as applied to such track of any particular industry from the beginning of its use by such industry, shall be considered as equivalent to a written contract in accordance with such practice.

Department of Public Works in Foreign Countries

M. L. LEIGHTON, chairman of the Engineers, Architects and Constructors' Conference on National Public Works, which is sponsoring the bill for the creation of a Department of Public Works in the United States, now before Congress, has prepared a brief summary of the practices of foreign countries regarding such a department. In Canada a ministry of Public Works presides over the Department of Public Works with control over rivers, harbors, and all hydraulic works, roads, bridges, public buildings, telegraph lines and surveys. Australia has a parliamentary committee of nine, which constitutes a standing committee of public works. New Zealand has the most comprehensive public works' code in existence, presided over by a Minister of Public Works whose powers include lands and eminent domains concerning the same; roads, surveys, bridges, ferries, rivers, railways, drainage, water supply, mining, water power and irrigation.

In France a Ministry of Public Works covers roads and traffic regulations, river and maritime navigation, water power, drainage, irrigation, railroads, mines, public buildings and public monuments. Spain has a Ministry of Public Works covering roads, railways, waters, rivers, canals, ports, mining and forestry. In Italy a Ministry of Public Works has jurisdiction over postoffices, railways, public buildings, bridges, monuments, prisons, fuel, storehouses, telegraphs, internal navigation, water storage, irrigation, drainage, floods, lighthouses, water power and climatology.

Denmark has a Department of Public Works having jurisdiction over buildings, roads, rivers, harbors, water-power, drainage, dykes, ferries, railroads, telegraphs, and telephones, postal affairs and transportation. It is of interest to note that this Department of Public Works was, by royal decree of April 27, 1900, set up by a division of the Departemnt of the Interior in much the same way as is now proposed for the United States by the Engineers, Architects and Constructors' Conference on National Public Works. Norway has a department of Public Works also—made by division from the Department of the Interior—with jurisdiction over highways, rivers, railroads, fire insurance, harbors, postal affairs, technical schools and surveys.

In Prussia a Ministry of Public Works has jurisdiction over coasts, harbors, lighthouses, merchant marine, waterways, public buildings, railroads, highways, monuments, postal service, telegraphs and telephones, rivers, lakes, canals, drainage and hydraulic works. Argentina has a Department of Public Works embracing all enterprises and works concerning means of communication, hydraulic works, all construction—either of architectural or other nature, including public buildings, monuments, churches, prisons, barracks, arsenals, forts, shipyards, lighthouses, roads, bridges and all hydraulic and sanitary matters.

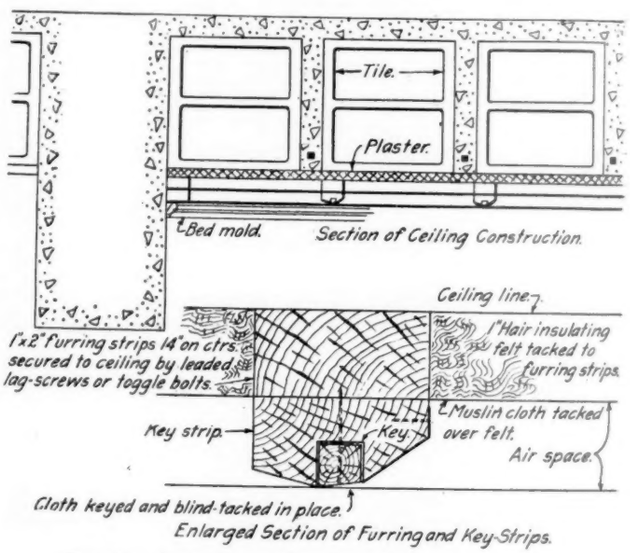
In Brazil a Department of Communication and Public Works has jurisdiction over railroads, highways, interior navigation, ports, rivers and canals, water supply, water-power and surveys. Chili has a Department of Industry and Public Works having jurisdiction over all communications by land, river and sea, the utilization and distribution of waters, public buildings, mines, surveys and mappings. In Peru a Department of Public Works—formerly a part of the Ministry of the Interior—has jurisdiction over irrigation, hygiene, mines, schools, patents and trade marks, water and state railways.

In England the Commissioners of Works and Public Buildings have control over the lands and buildings of all kinds belonging to the Government, while rivers and harbors and their appurtenances are under the jurisdiction of the Board of Trade. This is the only modern government of any size, except the United States, in which all government activities of this kind are not concentrated under one jurisdiction.

Insulating an Office for Noisy Machines

THE INTRODUCTION of a great many calculating and other machines in accounting offices has led to no little difficulty in some instances because the noise made by these machines tends to reduce the efficiency of the persons employed in the department. Following the introduction of dictating machines in the office of the auditor of disbursements of the Santa Fe at Topeka, it was concluded to segregate all operators using mechanical devices of every nature in one room partitioned off from the main office with the intention of cutting off the noise. The partition consisted of plaster wainscot on metal lath to a point about 3 ft. above the floor with double glazed sash from there to the ceiling. The effect of the air space between the glass did not interfere with the lighting arrangement and eliminated the noise and confusion of the typewriters and other mechanical devices so far as the outside clerical force was concerned, but the volume of the noise within the room was so great that it materially reduced the grade of work done.

After trying felt cushions under the machines to obstruct the transmission of the noise to the floor, the idea was conceived of insulating the ceiling as shown in the drawing. The ceilings in the building consist of hollow tile with cement plaster. Accordingly furring strips were secured to this ceiling by expansion bolts with the strips 14 in. center to center. One inch of hair insulating felt was then secured in place between these strips by fine soft wire suspended from the strips, both the furring strips and the insulating felt being then covered by muslin tacked over the felt. One-inch key strips were then placed under the furring strips as a means of stretching a porous cloth over the ceiling, the cloth being separated from the insulating felt by an air space of one inch.


Tile.
Plaster.
Bed mold.
Section of Ceiling Construction.
Ceiling line.
1"x2" furring strips 14" on ctrs. secured to ceiling by leaded lag-screws or toggle bolts.
1" Hair insulating felt tacked to furring strips.
Muslin cloth tacked over felt.
Key strip.
Key.
Air space.
Cloth keyed and blind-tacked in place.
Enlarged Section of Furring and Key-Strips.

Details of the Insulation Applied to the Ceiling

This improvement was entirely successful. Coupled with the continued use of the felt pads under the machines, the noise was reduced to a minimum. The ceiling insulation effectively eliminated the ringing echo which had been so disconcerting to the workers. This work was done last year and cost $0.86 a sq. ft. complete for 1,584 sq. ft. applied. The material was purchased from H. W. Johns-Manville Company and applied by Lundgren & Carlson of Topeka.

General News Department

The bill to repeal the daylight saving law, effective with the change of the clocks in October, was repassed over the President's veto on Wednesday by the Senate after the House had taken similar action the day before.

Secretary Lane of the Interior Department has submitted a report to Congress recommending the enactment of a bill to forfeit rights-of-way heretofore granted to railroad companies through Indian reservations in all cases where the grantees have failed to utilize the land for five years.

Alfred W. Smithers, chairman of the board of directors of the Grand Trunk Railway of Canada, has been knighted by King George. Sir Alfred has been intimately associated with the activities of the pioneer Canadian line for the past 25 years and chairman of the board since 1909. He is a member of the British House of Commons.

Eleven or more persons, most of them children, were killed in a trolley car accident at a point two miles north of Parkersburg, W. Va., on August 14, an interurban car running into a locomotive of the Baltimore & Ohio, which, according to the reports, appears to have been standing on a side track. Steam from a broken pipe of the locomotive scalded many passengers.

Suspension in street car traffic in Pittsburgh, Pa., last week, because of a strike, threw a large volume of passenger traffic temporarily on the steam railroads entering the city. The United States Railroad Administration sent from Philadelphia and from Washington 127 passenger coaches for use in the Pittsburgh region. These coaches, in seven trains, moved over the Pennsylvania Railroad.

Delos W. Cooke, formerly vice-president of the Erie Railroad and later United States Fuel Administrator for New York, is now a Chevalier of the Legion of Honor, this title having been conferred upon him by the government of France. This honor is in recognition of Mr. Cooke's services in connection with the control of trans-Atlantic traffic for the Allies. He is now associate director of the Cunard Steamship Line.

The National Safety Council reports that the American Rolling Mill Company, Middletown, O., in the first five months of 1919 reduced by 46 per cent the number of casualties to employees and by 51 per cent the total number of days lost as the result of accidents, as compared with the same period in 1918; and the total compensation paid by the company on account of injured employees was 91.9 per cent less than in the previous year. In the month of May, the total outlay for compensation on account of accidents to 3,500 men amounted to $1.71.

The Union Pacific Railroad Company has offered to the Nebraska State Highway Commission to make 50 year leases to county authorities of a sufficient width of the outer margin of its 400-foot right of way for the location of the improved Lincoln Highway, such leases to be at nominal rental and subject to certain reservations protecting the company in case of future need to occupy portions of the leased strip for operating purposes. The conclusion of the arrangement is understood to be awaiting the formal approval of the authorities of the federal government charged with responsibility for the advancement of federal funds in aid of highway improvements.

The Indiana Livestock Sanitary Board has abolished the requirement that all stock cars must be cleaned at the Indianapolis, Ind., stock yards, according to Dr. L. E. Northrop, state veterinarian, and as a result an extra item in the cost of production of beef has been eliminated in Indiana. The regulation was adopted at a recent meeting of the Board and does away with the charge of $2 a car which Indiana shippers were compelled to pay in freight charges. Dr. Northrop said that the cost of cleaning cars varied from $2 to $300 a day for shippers and pointed out that inasmuch as other states did not make this requirement, Indiana shippers have been paying for cleaning cars for the shippers of Kentucky, Illinois and other states. The cars that contain infected or suspicious animals are cleaned now, as heretofore, in compliance with state laws.

The Brotherhoods, in their zeal for developing an idealistic raison d'etre, often ignore the human side of their union. An interesting example of this recently came to light as a result of a decision rendered by the Railway Board of Adjustment No. 1. A number of Chicago Great Western officers early volunteered for war service and went overseas. Conductor J. F. Donnelly was appointed by his superintendent as acting trainmaster to avoid a possibility of section 18, article 9 of the schedule of conductors and trainmen being invoked to demote him. Under this section conductors or trainmen appointed to official positions retain their seniority rights not over six months. Mr. Donnelly served faithfully, preserving the continuity of his service as a conductor by running several trips during each six months period, and his name was retained on the conductor's seniority list without protest, although this seniority list was corrected four times. In fulfilling his duties as acting trainmaster Mr. Donnelly was forced to discharge a brakeman, a member of the Brotherhood of Railway Trainmen, for being asleep in the drawing room of the rear Pullman car on a troop train. This was a serious offense, but the general chairman of the Brotherhood of Railway Trainmen stated that he would get Mr. Donnelly's job and invoked the seniority rule to that end. He obtained the approval of the executive officers of the Brotherhood for that purpose and had the case placed before Railway Board of Adjustment No. 1. Here the case was decided against him.

The Board of Directors of the Associated Industries of Missouri at a recent meeting adopted a resolution opposing the Plumb plan of railway ownership and operation and the nationalization of industry generally. The resolution characterizes the proposal of the railroad workers for conducting the roads as "the most serious menace to the welfare of the nation" which has been presented to Congress since the United States gained its independence.

The resolution as adopted is as follows:

WHEREAS, the proposition is before Congress to nationalize the railroads of the country which is stated to be the first step in the nationalization of industry; now, therefore, be it

RESOLVED that the Associated Industries of Missouri declare itself emphatically and unqualifiedly opposed to the government ownership or government operation of railroads as set forth in the plan of the Railroad Brotherhoods which in our estimation is the most serious menace to the welfare of the nation of any legislation presented to Congress since we became a republic; and

RESOLVED we are unalterably opposed also to the continuation of government operation with all its inefficiency, poor service and high cost of transportation, and that we are in favor of an immedate return of the railroads to their owners; and,

RESOLVED that we are utterly and forever opposed to the nationalization of industry since this will result in ruin to the industries, the workers and the nation.

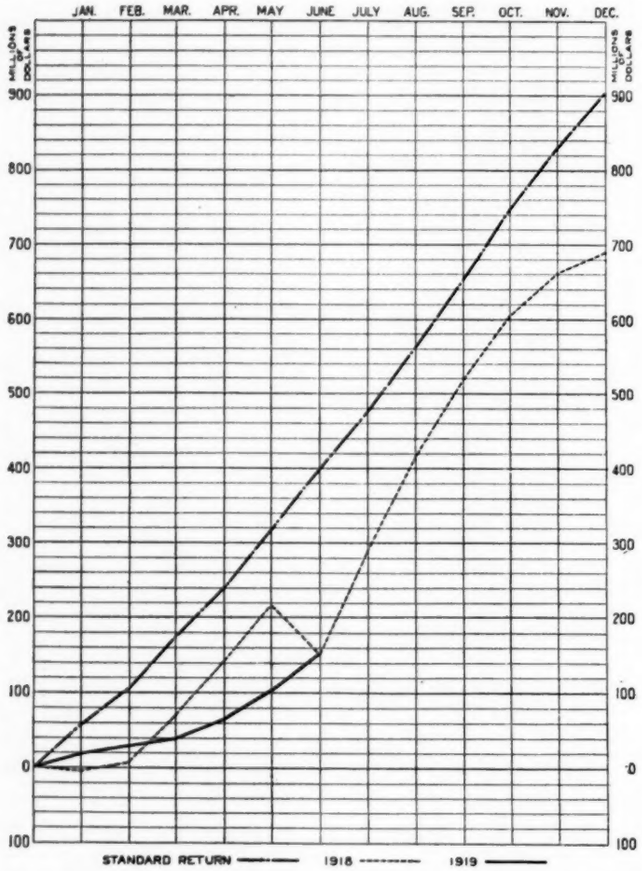
The members of the Associated Industries of Missouri are business men and manufacturers.

Turn Around Service on the Western Maryland

In the issue of August 8 an article on "Turn Around Service on the Western Maryland" was published and, through a typographical error, the author's name was omitted. The author is J. L. Carnochan of Hagerstown, Md.

Net Operating Income

The chart made by the Bureau of Railway Economics shows the net operating income of the Class 1 Roads in 1919, compared with the average in the test period (1915-1916-1917) on which government rental is based. The table gives the figures on which the chart is based.



Net Operating Income, Cumulated by Months, 1918 and 1919, Compared with Standard Return, Class 1, Railways of United States

Month	Average net operating income (Standard return) in 3-year test period: By months	Average net operating income (Standard return) in 3-year test period: Cumulative	Net operating income earned in 1919: By months	Net operating income earned in 1919: Cumulative	Deficit in 1919: By months	Deficit in 1919: Cumulative
January	$56,613,000	$56,613,000	$18,783,702	.....	$37,830,000	.....
February	47,934,000	104,547,000	10,106,268	$28,889,970	37,828,000	$75,658,000
March	68,251,000	172,798,000	10,842,608	39,660,778	57,409,000	133,067,000
April	67,289,000	240,087,000	26,115,214	65,916,807	41,174,000	174,241,000
May	77,385,000	317,472,000	39,462,367	105,215,450	37,923,000	212,257,000
June	82,550,000	400,022,000	52,270,702	157,448,669	30,279,000	242,573,000
July	75,341,000	475,363,000	.....	.....	.....	.....
August	86,860,000	562,223,000	.....	.....	.....	.....
September	91,273,000	653,496,000	.....	.....	.....	.....
October	94,333,000	747,829,000	.....	.....	.....	.....
November	83,536,000	831,365,000	.....	.....	.....	.....
December	73,282,000	904,647,000	.....	.....	.....	.....

Safety by Supervision

R. J. Clancy, in charge of safety work for the Southern Pacific-Western Pacific lines, says that "No-Accident Week," in which casualties were reduced 72½ per cent, confirms the view that four-fifths of all accidents are induced by carelessness, and that most of the carelessness is due to inefficient or lax supervision. This good week's record was accomplished by improved supervision and by all officers taking an active interest in the manner in which employees performed their duties. "Supervision is not confined to officers," says Mr. Clancy; "the most important element of supervision is self-supervision. No one, whether officer or employee, is qualified to supervise others until he has learned to supervise himself—to obey the rules and avoid unsafe practices. Self-supervision is the starting point."

The Safety-Agents' Records for May

The Safety Section of the United States Railroad Administration reports that for the month of May, 2,051 meetings were held by the safety departments of the railroads under government control; attended by 26,188 officers and employees and 1,038 representatives of the safety departments; or one specialist to 26 ordinary members. The total attendance, including visitors, was 31,486, and absences recorded numbered 5,875. Illustrative accidents discussed numbered 4,543; number of safety rallies held 338 and safety bulletins and circulars posted 79,721. In addition to these bulletins and circulars the record of magazines, pamphlets and other literature distributed during the month shows a total of 552,480.

The total numbers of casualties reported from the seven regions for the month of May were: employees killed, 123; injured, 9,206; all cases (including employees), 532 killed and 10,369 injured. The total net decreases, as compared with May, 1918, are: employees killed, 109; injured, 3,393; all cases, killed 129, injured 3,477.

Attention is called to the fact that these comparisons are more satisfactory than those heretofore reported for the reason that on the basis of labor, weather and traffic conditions, May, 1918, was similar to May, 1919.

The Norfolk & Western's report of casualties to employees for six months makes the following remarkable showing, the records being made up according to the Interstate Commerce Commission standards:

Half-year	Killed	Injured	Total	Total man-hours	Man-hours per injury
1918	38	1,270	1,308	36,666,310	28,032
1919	7	735	742	30,826,124	41,545
Increase	..	.....	.....	.....	
Decrease	31	535	566	5,840,186	
Per cent	82	42	43	16	

Net decrease in total killed and injured over man-hours exposed to injury, 27 per cent. The total cost of damage to cars, engines and track in train accidents in 1919 was 38 per cent less than in 1918, though the total number of car miles was only 21 per cent less.

Colorado Governor Aids Heavy-Loading Campaign

Recognizing the necessity for loading cars to capacity and unloading them quickly in order that the heavy crops of the present season may be moved and saved, Governor Oliver H. Shoup of Colorado has issued a proclamation urging the people of Colorado to follow suggestions made by Hale Holden, Central Western regional director, regarding the necessity for loading all cars to their full carrying capacity in order to combat the threatened car shortage.

Governor Shoup's proclamation said:

"In these days when national, state, county and municipal authorities are bending their energies toward the solution of the problems of reconstruction, among which the high cost of living looms most conspicuously, it is

imperative that there be co-operation among all classes of our citizens toward the one end sought. Habits of conservation, inculcated during the period of war activities, should be continued and encouraged along all lines and in every avenue of business activity, and wastefulness, extravagance and inefficiency should be discouraged among the people of the United States.

"The Denver Civic and Commercial Association, representing substantially all of the active forces of the community, acting on the advice of the Transportation Bureau of that organization, calls attention to the imperative need for the conservation of the hauling facilities of the railroads of the country and the imminent danger of a shortage of equipment unless absolute care and great wisdom are used in loading cars.

"A circular from Mr. Hale Holden, regional director of the United States Railroad Administration, dealing with the subject of Car Efficiency—Intensive Loading," states: "We are facing what promises to be the heaviest demand for equipment for some years," and he suggests that "the public can do more to guard against a car shortage than the railroads to the extent that such a condition may be materially relieved by loading all cars to their full carrying capacity, instead of resuming the former easier method."

"Being assured that this serious condition is facing the people of Colorado, I desire to urge the necessity of following the suggestion made by Mr. Holden, who is in direct touch with the situation, and I hereby urge that the shippers of Colorado intelligently and willingly co-operate with the managers of the railroads in the matter of loading, to the end that the people of this state shall conserve their own shipping facilities by seeing to it that freight cars do not go out lightly loaded, but that the maximum carrying capacity be utilized in every instancee. This is an imperative matter at this time, and the Civic and Commercial Association is doing a real service in emphatically calling it to the attention of those whose prosperity and happiness will be hampered if the request of the Railroad Administration in the matter of loading care be not heeded promptly and wholeheartedly.

"Real American grasp of a serious situation, such a grasp as was maintained during the war, will ward off a trouble whose consequence might be serious and far reaching."

The necessity for loading cars to the maximum and unloading them with the least delay is especially imperative in Colorado because of the production in that state of an immense fruit crop, perishable and involving millions, which will be in a large part a loss, unless enough cars can be obtained at the right time to move it. The same possibility also arises, although in lesser degree, with regard to the heavy grain and potato crops produced in Colorado. Aside from these imperative reasons, recognition is given to the national necessity for moving the immense wheat and corn yields of the country with a minimum loss. Governor Shoup's proclamation was issued in response to a request from George W. Martin, secretary of the Denver Operating Committee of the Railroad Administration and Arthur J. Dodge, business manager of the Civic and Commercial Association.

Railway Revenues and Expenses for June and Six Months

The Interstate Commerce Commission's compilations, subject to revision, from reports of 105 Class I roads and 17 switching and terminal roads, for the month of June and the six months ended June 30, are as follows:

Item	June, 1919 and 1918				Six months			
	Amount		Per mile of road operated		Amount		Per mile of road operated	
	1919	1918	1919	1918	1919	1918	1919	1918
1. Average number miles operated	233,568.20	234,273.71	.....	.....	233,558.05	234,210.98	.....	.....
Revenues:								
2. Freight	$284,487,599	$263,796,118	$1,218	$1,126	$1,613,365,465	$1,439,048,083	$6,908	$6,144
3. Passenger	105,464,476	94,810,606	452	405	542,809,826	448,613,479	2,324	1,915
4. Mail	4,301,364	4,495,709	18	19	25,790,449	27,157,506	110	116
5. Express	10,063,454	9,650,621	43	41	52,815,186	56,823,141	226	243
6. All other transportation	11,067,537	10,991,665	48	47	57,998,562	57,094,895	248	244
7. Incidental	10,478,591	11,120,450	45	48	61,631,485	57,604,190	264	246
8. Joint facility—Cr.	544,364	489,831	2	2	3,267,367	2,757,041	14	12
9. Joint facility—Dr.	179,637	154,144	1	1	993,010	833,294	4	4
10. Railway operating revenues	426,227,748	395,200,856	1,825	1,687	$2,356,685,330	$2,088,265,041	10,090	8,916
Expenses:*								
11. Maintenance of way and structures	66,271,891	67,875,290	284	290	370,823,325	288,500,683	1,587	1,232
12. Maintenance of equipment	96,649,377	106,245,571	414	454	572,951,370	462,869,824	2,453	1,976
13. Traffic	3,831,301	5,474,733	16	23	22,447,290	27,788,477	96	119
14. Transportation	176,105,918	238,728,995	754	1,019	1,043,210,690	970,803,480	4,467	4,145
15. Miscellaneous operations	4,139,241	4,118,327	18	18	22,712,035	18,732,146	98	80
16. General	9,961,314	13,394,422	43	57	61,427,854	55,842,879	263	238
17. Transportation for investment—Cr.	554,761	452,164	3	2	3,026,290	2,845,859	13	12
18. Railway operating expenses	356,404,281	435,385,174	1,526	1,859	2,090,546,274	1,821,691,630	8,951	7,778
19. Net revenue from railway operations	69,823,467	†40,184,318	299	†172	266,139,056	266,573,411	1,139	1,138
20. Railway tax accruals (excluding "war taxes")	14,559,157	17,118,020	63	73	91,663,514	92,439,375	392	395
21. Uncollectible railway revenues	75,337	61,835	.....	.....	369,021	312,303	2	1
22. Railway operating income	55,188,973	†57,364,173	236	†245	174,106,521	173,821,733	745	742
23. Equipment rents (Dr. Bal.)	1,654,066	2,470,154	7	11	9,500,353	13,754,841	41	59
24. Joint facility rents (Dr. Bal.)	1,264,205	1,439,698	5	6	7,157,499	6,598,988	30	28
25. Net of items 22, 23 and 24	52,270,702	†61,274,025	224	†262	157,448,669	153,467,904	674	655
26. Ratio of operating expenses to operating revs.. %	83.62	110.17	.....	.....	88.71	87.23	.....	.....

*The operating expenses for June, 1918, include wage increases representing back pay for the period, January to May, 1918, inclusive.

†Deficit. ‡Credit item.

Note—The average railway operating income corresponding to item 22 above for the month of June in the three years 1915, 1916 and 1917, included in the "test" period of three years ended June 30, 1917, was $371 per mile of line for the United States.

Freight Claims Section—A. R. A.

J. E. Fairbanks, general secretary of the American Railroad Association, 75 Church street, New York City, announces that the Executive Committee of the association has created an additional section to be known as Section VII—Freight Claims, to include the former activities of the Freight Claim Association. The temporary General Committee, to manage the section until a regular election shall be held consists of H. C. Pribble (A. T. & S. F.), chairman; J. B. Baskerville (N. & W.); E. J. Bloodgood (C. & N. W.); W. O. Bunger (C. R. I. & P.) R. L. Calkins (N. Y. C.); J. J. Hooper (Southern); H. C. Howe (C. & N. W.); W. S. Reed (P. & W. V.); and J. H. Howard, manager of the Claims and Property Protection Section of the United States Railroad Administration.

Passenger Traffic in May

The number of passengers carried one mile on the railroads under federal control during the month of May was 3,656,571,089, a decrease of 0.9 per cent as compared with May, 1918. In the Ohio-Indiana district the decrease was 22.2 per cent, in the Southern region there was a decrease of 13.6, and in the Southwestern region a decrease of 3.8 per cent. The other regions showed increases. For the five months ended May 31 the increase in passengers carried one mile was 4.4 per cent.

REVENUES AND EXPENSES OF RAILWAYS

SIX MONTHS OF CALENDAR YEAR, 1919

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Balto & Ohio	5,151	$57,728,524	$15,837,364	$79,759,851	$12,763,302	$26,717,766	$929,510	$37,578,470	$2,328,555	$80,935,158	101.47	—$1,175,307	$2,236,103	—$3,418,672	—$182,343
Balto., Ches. & Atlantic	87	431,632	200,573	655,638	89,795	144,661	5,986	419,636	20,731	680,808	103.83	—25,170	18,960	—44,130	—24,788
Bangor & Aroostook R. R.	632	2,047,831	438,879	2,611,728	523,707	679,456	23,185	1,020,902	77,769	2,358,541	90.30	253,187	126,000	126,808	—39,783
Beaumont, Sour Lake & Western	118	437,533	137,090	604,315	154,440	122,476	10,336	283,290	30,230	600,773	99.41	3,542	16,200	—12,726	—272,513
Belt Ry. Co. of Chicago	31	.....	.....	1,588,074	137,582	311,738	2,116	1,064,643	46,246	1,562,325	98.37	25,749	92,379	—66,631	—46,292
Bessemer & Lake Erie	217	5,331,478	199,032	5,688,416	602,210	1,862,745	64,425	1,957,655	116,951	4,549,037	79.97	1,139,380	87,000	1,052,287	313,367
Hingham & Garficld Ry	37	544,286	12,763	583,296	232,277	231,093	8,101	171,659	24,414	680,976	116.74	—97,681	41,062	—138,742	—809,424
Birmingham Southern R. R.	29	221,761	.....	304,739	23,402	39,078	4,130	156,259	19,324	222,195	72.91	82,545	15,037	66,794	30,087
Boston & Maine	7,258	18,675,449	9,920,633	32,045,780	4,563,059	6,582,247	229,539	18,229,518	1,018,861	30,819,097	96.17	1,266,683	1,049,552	176,594	592,603
Buff. & Susquehanna R. R. Corp.	296	914,827	42,214	1,006,751	238,574	513,394	10,648	363,408	46,036	1,172,058	116.41	—165,308	19,500	—184,808	—204,260
Buff., Rochester & Pitts.	590	5,504,045	732,747	6,480,097	1,132,357	2,385,881	87,635	3,414,294	198,997	7,231,724	111.59	—751,627	162,000	—914,071	—823,476
Canadian Pacific Ry. Lines in Maine	233	1,165,444	330,889	1,572,099	264,043	372,235	15,807	1,051,206	22,183	1,725,475	109.75	—153,376	66,000	—219,375	—28,618
Carolina, Clinchfield & Ohio	282	2,530,975	184,961	2,764,767	474,835	751,970	28,091	898,496	78,663	2,231,704	80.71	533,063	97,800	435,247	40,087
Central New England	301	2,774,352	141,947	3,057,399	738,700	625,252	15,721	1,525,323	88,461	2,998,878	98.08	58,522	96,000	—37,665	—197,287
Central of Georgia	1,918	6,155,160	2,990,042	10,104,559	1,940,705	2,161,929	200,299	4,513,403	349,224	9,514,836	94.16	949,723	748,017	597,636	—1,180,147
Central R. R. Co. of New Jersey	685	14,896,203	3,710,636	20,197,407	2,432,973	5,429,508	128,283	9,885,705	496,501	18,456,254	91.37	1,741,152	944,752	796,248	—423,176
Central Vermont Ry.	411	1,913,354	475,443	2,629,992	494,298	702,025	40,879	1,721,328	105,878	3,069,434	116.71	—439,442	104,400	—543,964	—241,626
Charleston & S. Carolina	342	1,099,339	315,892	1,478,482	262,474	264,267	24,811	746,186	36,058	1,333,795	90.21	144,687	51,000	93,686	—109,964
Chesapeake & Ohio	2,499	25,326,962	7,458,267	34,778,133	5,531,387	7,535,899	217,463	13,848,434	664,364	27,983,460	80.46	6,794,673	1,026,841	5,764,340	1,617,663
Chicago & Alton	1,050	8,396,713	2,992,742	12,080,991	2,024,090	3,346,415	155,689	5,288,260	294,619	11,163,620	92.41	717,371	338,554	577,743	74,723
Chicago & Eastern Ill.	1,131	8,375,910	2,291,701	11,510,525	1,818,135	4,437,829	134,859	5,211,886	286,882	11,918,747	103.54	—408,212	477,092	—887,783	—931,385
Chicago & Erie	269	3,980,438	569,946	4,952,461	568,144	894,165	64,350	2,580,689	169,537	4,294,212	86.71	658,249	183,930	472,238	939,029
Chicago & N. W.	8,090	41,259,236	15,953,948	62,550,324	9,692,877	13,575,621	424,440	29,826,510	1,457,548	55,454,562	88.65	7,096,762	2,850,000	4,242,405	3,556,814
Chicago, Burlington & Quincy	9,372	47,617,052	15,677,021	68,485,084	10,735,258	14,027,360	521,494	28,003,194	1,896,717	55,897,840	81.62	12,587,244	2,663,178	9,904,741	2,253,956
Chicago, Great Western	1,496	6,259,074	2,834,780	9,812,065	1,707,967	2,362,117	152,461	4,353,425	265,717	9,117,655	92.92	694,411	348,568	344,768	161,258
Chicago, Indianapolis & Louisville	651	3,762,464	1,336,682	5,604,328	654,761	1,362,226	80,336	2,369,287	154,654	4,678,182	83.47	926,146	208,390	717,516	366,371
Chicago Junction Ry.	12	.....	.....	1,688,746	446,799	294,239	583	1,382,565	44,990	2,169,175	128.44	—480,429	14,231	—494,661	—342,974
Chicago, Milwaukee & St. Paul	10,647	48,957,408	14,019,317	69,093,453	9,903,847	19,923,220	526,702	52,851,777	1,841,455	65,231,927	94.41	3,861,527	3,206,528	646,280	2,489,095
Chicago, Peoria & St. Louis	247	577,613	141,806	768,750	218,411	381,305	16,769	495,291	53,917	1,165,685	151.63	—396,935	44,366	—441,315	—268,309
Chicago, Rock Island & Gulf	474	1,575,375	481,708	2,176,505	396,404	443,961	41,182	1,036,552	70,533	1,993,870	91.61	183,634	78,929	103,412	—414,441
Chicago, Rock Island & Pacific	7,595	32,053,269	14,068,053	49,082,858	7,996,568	11,954,974	585,933	22,194,148	1,215,152	44,153,200	89.95	4,929,658	2,092,295	2,834,291	—382,883
Chicago, St. Paul, Minn. & Omaha	1,749	8,259,878	2,487,037	12,640,380	1,709,344	2,403,897	117,499	6,198,068	356,317	10,876,584	86.04	1,763,796	620,865	1,140,900	763,894
Chicago, Terre Haute & S. E.	374	1,677,556	126,820	1,847,297	311,427	896,131	20,546	742,788	51,441	2,031,588	109.97	—184,291	87,000	—271,309	91,683
Cin., Indianapolis & Western	321	941,069	304,238	1,381,004	284,113	420,312	27,581	787,263	77,890	1,600,485	115.89	—219,480	61,459	—280,939	—247,625
Cin., New Orl. & Texas Pac.	337	6,045,965	1,852,712	8,303,700	971,530	2,574,105	141,896	3,019,316	204,344	6,965,638	83.88	1,338,062	232,119	1,102,282	184,012
Cin. Northern	251	1,273,164	101,421	1,409,470	235,282	319,986	13,546	499,510	29,133	1,097,258	77.84	312,213	50,000	262,061	250,919
Cleveland, Cin., Chicago & St. L.	2,395	22,062,935	7,714,458	32,304,999	4,329,452	6,580,623	454,420	13,590,987	656,302	25,859,126	80.05	6,445,873	1,110,000	5,330,796	1,885,920
Colorado & Southern	1,100	4,819,065	1,045,170	6,190,812	957,707	1,452,329	56,338	2,401,161	218,652	5,120,441	82.71	1,070,371	282,000	786,067	299,162
Colorado & Wyoming Ry.	41	145,597	7,201	569,387	58,807	106,144	647	260,716	22,945	449,256	78.90	120,130	24,000	96,130	—17,507
Cumberland Valley	163	2,069,565	395,336	2,641,972	510,545	650,105	39,104	1,172,278	69,513	2,395,922	90.69	245,850	53,817	191,755	428,344
Delaware & Hudson Co.	875	13,692,234	1,332,441	15,938,986	2,049,311	4,664,930	110,603	7,365,021	641,731	15,014,920	94.20	924,066	360,090	557,589	1,403,294
Del., Lackawanna & Western	955	24,930,343	5,610,350	34,162,323	3,211,841	7,243,298	234,750	14,966,952	670,992	26,668,286	78.06	7,494,037	1,857,294	5,623,693	184,481
Denver & Rio Grande R. R.	2,617	10,588,815	2,686,150	14,098,588	2,211,193	3,862,068	113,872	5,127,777	408,710	11,955,022	84.79	2,143,561	615,000	1,526,082	566,170
Denver & Salt Lake R. R.	255	999,149	163,478	1,202,985	411,676	527,627	5,565	742,161	26,949	1,715,979	142.64	—512,994	54,000	—567,041	—227,985
Detroit & Mackinac	381	525,671	174,768	719,953	126,932	220,712	22,574	387,548	77,328	835,092	115.99	—115,139	44,094	—159,234	—148,503
Detroit, Tol. Shore Line	61	1,090,590	.....	1,120,911	98,071	90,246	4,463	319,176	16,972	528,339	47.13	592,573	61,246	531,320	161,099
Detroit, Tol. & Ironton	459	1,528,989	68,623	1,716,587	517,337	615,410	16,124	853,159	77,278	2,079,309	121.13	—362,722	51,432	—414,388	108,801
Duluth & Iron Range	292	2,973,133	133,449	3,339,757	455,337	520,162	2,817	1,001,893	82,960	2,063,674	61.79	1,276,084	168,254	168,254	1,107,348
Duluth, Missabe & Northern	410	7,775,429	256,810	8,300,030	864,574	788,242	12,619	1,630,974	105,051	3,410,005	41.08	4,890,016	230,708	4,659,308	2,799,349
Duluth, South Shore & Atlantic	599	1,488,093	530,936	2,151,128	426,164	403,634	36,778	1,130,191	57,583	2,081,627	96.76	69,501	123,003	—53,561	144,789
Duluth, Winnipeg & Pac.	178	787,457	141,018	964,484	164,642	187,650	13,657	443,630	48,356	863,630	89.54	100,854	49,869	50,984	2,313
East St. L. Connecting	3	.....	.....	557,457	81,647	162,570	1,763	375,855	20,524	642,360	115.23	—84,904	15,111	—100,014	—24,983
El Paso & S. W.	1,027	4,844,861	1,077,107	6,239,429	814,207	1,215,106	57,718	1,773,857	149,683	4,054,553	64.98	2,184,877	332,719	1,851,762	—805,925
Elgin, Joliet & E.	827	8,793,548	42	10,254,004	909,434	2,603,286	40,467	4,005,682	153,113	7,711,477	75.20	2,542,527	317,897	2,224,630	1,052,290
Erie R. R.	1,989	31,641,335	3,297,185	41,831,624	5,024,814	14,367,606	357,794	21,473,187	1,213,951	42,668,532	102.00	—836,907	1,512,147	—2,361,232	3,119,383
Fla. East Coast	764	3,055,499	1,748,070	5,390,729	879,257	967,917	48,990	2,543,726	93,408	4,595,198	85.24	795,531	196,949	597,698	—1,122,675
Fonda, Johnston & Gloversville	88	183,159	373,650	579,818	60,283	53,613	3,255	224,603	28,641	370,394	63.88	209,424	29,400	180,023	5,452
Ft. Smith & Western	253	508,459	146,187	703,831	141,509	178,952	21,868	267,133	37,720	649,670	92.30	54,161	30,000	23,355	7,857
Cin., Lebanon & Nor.	76	365,002	40,066	488,232	102,626	108 872	7,831	303,212	5,090	527,629	108.06	—39,397	25,846	—65,243	—47,978
Ft. Worth & Denver City Ry.	454	3,376,118	1,402,476	4,989,915	548,451	975,386	26,935	1,879,791	148,621	3,595,222	72.04	1,394,694	115,500	1,278,364	744,397
Ft. Worth & Rio Grande Ry.	235	345,972	275,684	668,087	170,008	144,265	576	395,539	38,664	754,233	112.89	—86,146	18,486	—104,956	—101,801
Galveston, Harrisburg & San Ant.	1,381	6,904,720	2,709,901	10,112,156	1,537,603	2,253,480	106,332	3,966,184	320,058	8,270,008	81.78	1,842,148	317,356	1,521,988	—1,047,144
Galveston Wharf Co.	13	.....	.....	403,624	115,363	3,770	164	158,014	9,294	332,778	82.44	70,845	72,100	—1,255	—125,756
Georgia R. R.	328	1,889,612	858,051	2,954,220	316,727	482,423	46,406	1,435,342	200,050	2,381,881	8,062	572,339	36,700	535,585	—199,196
Georgia Southern & Florida	402	1,373,239	574,319	2,130,119	374,581	532,464	36,287	1,007,034	61,058	2,015,325	94.61	114,775	82,053	32,391	—121,817
Georgia & Florida	348	331,391	108,778	468,536	163,694	118,073	11,754	305,041	32,987	631,549	134.79	—162,994	25,219	—188,989	—149,661
Grand Rapids & Ind.	569	2,411,061	833,006	3,535,766	569.926	848,976	60,179	1,809,963	133,963	3,431,113	97.04	104,653	154,552	—49,929	—96,586
Grand Trunk Western Line	1,001	7,754,829	1,645,499	10,232,842	1,246,722	1,932,848	96,387	4,846,386	283,330	8,431,125	82.39	1,801,717	301,372	1,496,981	1,980,546
Great Northern Ry.	8,252	34,432,295	8,542,067	47,292,186	9,539,390	9,352,236	326,116	20,966,889	911,897	41,686,831	88.18	5,585,352	2,756,058	2,825,697	4,380,784
Gulf & Ship Island R. R.	317	784,691	251,202	1,130,676	327,885	261,618	22,325	498,079	52,150	1,164,309	102.97	—33,633	62,862	—96,588	—303,991

REVENUES AND EXPENSES OF RAILWAYS

SIX MONTHS OF CALENDAR YEAR, 1919—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Gulf Col. & Santa Fe	1,934	6,010,766	2,347,770	8,856,833	1,982,044	1,619,266	85,969	4,032,529	292,330	7,992,802	90.24	864,031	427,006	433,538	—1,184,256
Grand Trunk Lines in New England	172	1,555,545	203,123	2,130,207	577,890	257,727	17,603	1,284,575	28,736	2,522,173	118.40	—391,967	69,000	—460,967	—28,555
Gulf, Mobile & Northern	424	933,200	244,367	1,244,001	270,800	328,041	31,857	612,996	57,293	1,299,632	104.47	—55,631	65,924	—121,835	—258,345
Hocking Valley	350	3,696,671	529,579	4,528,294	614,842	1,736,024	35,885	1,713,993	125,881	4,224,877	93.29	303,417	333,500	—33,748	—242,448
Houston & Texas Central	847	2,692,431	1,178,135	4,103,179	799,822	783,844	42,604	1,803,901	116,230	3,544,287	86.37	558,895	206,750	350,188	—496,137
Houston, East & West Texas	100	803,446	246,354	1,100,792	205,421	140,601	3,489	532,049	25,134	908,694	82.54	192,098	37,491	153,927	—57,843
Illinois Central	4,787	35,323,452	11,463,010	50,353,827	8,827,800	13,562,249	451,131	21,559,544	1,360,854	45,974,503	91.30	8,379,324	2,410,000	1,959,753	—1,151,843
Indiana Harbor Belt	116	.....	.....	3,001,706	530,351	652,572	10,451	1,926,395	100,447	5,220,228	107.27	—218,525	60,025	—278,551	192,202
International & Great Northern	1,159	4,840,679	1,488,200	6,757,763	1,636,293	1,776,285	74,925	3,494,526	239,595	7,255,669	107.37	—497,906	180,000	—678,728	—1,364,391
Kanawha & Michigan	176	1,563,255	341,145	1,975,871	295,967	732,001	14,470	774,432	75,751	1,892,626	95.78	83,245	107,310	—24,068	—501,308
Kansas City, Mexico & Orient	272	421,498	97,886	545,973	247,983	238,817	7,444	342,172	43,368	879,784	161.19	—333,810	37,551	—371,382	—138,724
Kansas City, Mexico & Orient of Texas	465	382,575	72,833	486,546	202,581	241,664	248,126	358,364	44,212	854,940	175.71	—368,394	29,906	—398,302	—326,789
Kans. City Southern	774	5,334,257	1,097,951	6,957,182	1,292,159	1,617,470	111,638	2,926,414	264,608	6,195,460	89.05	761,722	395,284	363,145	—1,537,582
Kansas City Terminal	26	.....	.....	625,578	88,170	154,865	.....	304,209	8,078	560,528	89.60	65,051	120,900	—55,900	—57,116
Lake Erie & Western	902	3,859,298	369,183	4,429,793	784,518	1,464,128	70,346	2,077,419	145,080	4,537,064	102.42	—107,271	162,500	—270,385	—550,333
Lake Superior & Ishpeming	34	246,861	1,439	276,668	112,287	111,877	1,208	78,638	15,438	319,447	115.46	—42,779	19,338	—62,117	—75,174
Lehigh & Hudson River	96	1,115,717	22,588	1,184,405	147,992	281,927	9,549	541,874	35,849	1,015,189	85.71	169,216	30,300	138,898	30,542
Lehigh & New England	229	1,487,533	9,702	1,591,508	256,811	351,851	15,913	602,279	55,348	1,281,968	80.56	309,540	250,430	259,110	—78,427
Lehigh Valley	1,435	23,292,820	3,167,720	29,325,283	4,288,496	8,214,472	246,607	14,231,920	644,852	27,726,531	.....	1,598,751	880,350	717,891	673,169
Long Island R. R.	398	2,702,541	7,610,542	11,409,564	1,640,416	1,827,501	67,729	5,636,598	283,598	9,539,433	83.60	1,870,131	544,121	1,323,543	—201,715
Louisian & Arkansas	302	767,082	211,192	1,015,989	246,738	249,872	26,252	482,292	36,645	1,035,800	101.94	—19,811	68,326	—88,192	—235,435
Louisian Ry. & Nav. Co.	549	1,372,514	212,076	1,682,460	475,663	314,293	22,932	867,196	45,983	1,726,044	102.59	—48,585	84,000	—127,717	—314,203
Lou. Western	207	1,225,846	663,046	1,969,408	260,155	361,733	23,571	573,529	65,094	1,296,273	65.82	673,135	56,004	616,964	—257,382
Lou. & Nashville	5,013	35,718,674	12,068,756	50,459,171	8,015,844	13,510,782	658,450	21,722,445	1,134,703	45,204,450	89.58	5,254,721	1,522,607	3,726,313	—2,631,440
Lou. Henderson & St. L.	199	1,008,017	368,383	1,433,646	301,501	208,136	37,186	573,054	44,633	1,164,509	81.22	269,137	24,000	244,711	—26,332
Maine Central	1,216	5,414,931	2,164,721	8,156,465	1,456,558	1,887,969	1,864,506	4,909,517	217,823	541,999	66.45	—385,544	453,738	—839,316	—94,699
Md., Del. & Va.	82	372,629	172,691	560,027	55,855	112,626	3,228	402,988	12,429	587,132	104.83	—27,105	10,398	—37,503	—44,705
Michigan Central	1,861	23,188,753	8,963,181	35,083,567	4,985,624	7,227,021	389,199	13,883,478	—654,905	27,554,912	78.54	7,528,655	970,000	6,555,842	1,979,398
Mineral Range R. R.	101	399,241	2,616	415,661	61,534	134,532	2,631	239,535	5,956	444,379	106.90	—28,719	21,500	—50,219	—45,539
Minn. & International	194	371,973	140,658	542,551	135,875	96,026	3,036	294,107	21,116	550,160	101.40	—7,610	27,990	—35,613	—69,699
Minneapolis & St. Louis R. R.	1,646	4,148,654	1,323,006	6,021,754	1,153,484	1,599,651	61,120	3,108,297	176,958	6,091,184	101.15	—69,431	307,802	—379,364	—286,015
Minneapolis, S. P. & S. Ste. Marie	4,243	14,213,088	3,581,275	18,979,824	2,931,271	4,266,919	142,276	8,431,201	430,399	16,290,811	85.83	2,689,013	1,124,762	1,563,178	2,386,297
Mississippi Central	168	300,039	155,358	474,912	114,376	182,660	7,199	204,530	34,927	543,693	114.48	—68,781	19,950	—88,739	—205,254
Missouri & N. Ark.	365	446,319	212,301	703,348	402,834	234,830	11,439	369,639	51,878	1,069,156	152.00	—365,808	38,386	—404,919	—409,612
Mo. Kans. & Tex. R. R.	1,714	10,948,018	3,827,561	15,609,924	3,090,326	4,633,955	151,299	5,634,620	464,954	14,029,525	89.87	1,580,400	540,735	1,038,737	211,954
Mo., Kans. & Tex. of Texas	1,796	6,940,115	3,608,161	11,371,309	2,283,685	1,986,297	124,230	5,849,639	438,487	10,779,144	94.79	592,165	290,554	298,487	598,584
Missouri, Okla. & Gulf	332	471,513	101,869	610,442	291,043	278,820	10,894	396,435	41,663	1,020,213	167.12	—409,771	51,016	—461,319	—217,297
Mo. Pacific	7,108	29,599,258	9,549,969	42,039,700	8,457,194	10,020,523	489,179	18,555,515	1,216,051	38,940,594	92.62	3,099,106	1,594,710	1,488,646	—3,645,694
Montour R. R.	54	521,908	9,164	559,144	159,592	336,687	7,228	155,494	38,434	698,868	124.98	—139,724	13,744	—153,474	—101,027
Mobile & O.	996	5,688,359	1,047,951	7,136,696	1,231,709	2,564,394	139,611	3,540,990	234,257	7,117,534	99.73	—580,838	323,022	—904,433	—860,586
Monongahela Ry.	108	1,437,554	121,207	1,575,785	387,888	220,325	6,027	535,213	41,724	1,191,176	75.59	384,609	30,000	354,590	24,326
Monongahela Connecting	6	.....	.....	832,669	136,410	313,495	3,072	444,452	45,100	940,529	112.95	—107,860	13,891	—121,751	—220,883
Morgan's Lou. & Texas R. R. & SS. Co.	400	2,387,999	1,032,873	3,644,660	549,335	809,703	45,956	1,595,714	121,460	3,133,725	85.98	510,935	184,549	325,270	—871,362
Nash., Chat. & St. L.	1,247	5,861,506	2,562,594	9,061,398	1,712,697	2,474,417	194,209	4,205,947	262,917	8,909,015	98.31	152,383	300,000	—149,437	—1,421,471
Nevada Northern	168	725,165	62,623	820,260	115,941	139,251	5,631	234,190	26,235	522,076	63.64	298,184	109,939	188,244	—323,825
New Orleans & N. E.	399	2,003,843	694,871	3,095,768	491,695	712,788	49,204	1,529,822	90,587	2,907,029	93.90	188,738	170,142	18,157	—494,339
New Orleans Great Northern	284	759,547	247,284	1,054,885	230,933	257,008	14,301	485,490	49,082	1,639,140	155.38	15,745	59,330	—46,422	—267,162
New Orleans, Texas & Mexico	191	632,161	196,894	889,149	221,677	200,148	15,438	321,300	35,004	826,220	92.92	62,928	60,800	2,883	—289,821
New York Central	6,075	80,533,476	38,580,468	141,813,610	19,173,541	31,447,731	1,273,102	63,088,721	3,686,202	120,868,443	85.23	20,945,166	5,273,955	15,665,435	9,146,197
New York, Chicago & St. L.	573	10,448,754	1,062,875	11,830,524	1,478,072	2,192,065	153,596	4,831,224	313,754	8,988,860	75.98	2,841,664	330,000	2,511,230	1,624,392
New York, N. H. & Hart.	1,965	21,311,056	20,691,116	47,535,175	6,685,206	10,227,289	242,073	24,616,967	1,688,749	44,280,761	93.15	3,254,473	1,608,000	1,635,633	—845,778
N. Y., Ont. & Western	569	2,945,688	846,682	4,610,067	723,459	1,278,281	49,567	2,319,404	141,364	4,512,011	97.87	98,056	152,800	—54,712	—204,193
N. Y., Phila. & Norfolk	121	2,732,510	705,402	3,692,713	296,300	864,081	50,442	1,821,241	68,675	3,207,608	69.57	485,105	102,342	382,763	152,071
N. Y., Susq. & Western	135	1,260,351	319,388	1,834,824	177,824	301,834	11,597	1,199,746	48,561	1,739,706	94.81	95,118	177,633	—82,737	—45,425
Newburgh & South Shore	7	.....	.....	841,165	117,117	170,896	.....	388,497	21,994	698,006	82,98	143,160	48,065	95,094	92,160
Norfolk & Western	2,087	28,449,104	5,162,438	35,358,796	4,804,049	10,154,683	211,141	13,333,564	624,433	29,234,802	82.68	6,123,995	1,560,000	4,563,150	—215,282
Norfolk Southern	907	1,974,757	807,796	2,781,226	614,173	595,053	45,034	1,601,695	123,041	2,981,988	107.21	—762	115,840	—116,792	—360,804
Northern Pacific	6,566	33,528,946	8,874,896	45,570,225	8,464,290	8,343,272	360,714	17,941,092	1,113,634	36,706,335	80.54	8,863,890	3,401,833	5,452,931	573,907
Northern Alabama	112	463,182	75,429	558,791	119,784	32,461	7,445	376,418	11,603	547,580	97.98	11,211	20,400	—9,189	—129,671
Northwestern Pacific	507	1,408,750	1,046,993	2,741,499	603,011	410,687	29,460	1,289,763	74,406	2,416,685	88.15	324,814	132,310	192,122	—335,080
Oregon Short Line	2,347	12,698,773	3,214,597	17,055,943	3,713,376	3,050,902	92,842	5,278,667	519,080	12,995,332	76.19	4,060,611	965,569	3,094,034	—1,143,596
Oregon-Wash. R. R. & Nav.	2,069	8,572,820	3,116,219	12,765,152	2,633,764	2,021,835	163,356	5,314,198	563,024	10,868,011	85.13	1,897,142	683,577	1,212,034	—662,983
Panhandle & Santa Fe	772	1,882,088	490,831	2,501,289	664,283	952,148	22,244	1,354,658	89,149	3,070,511	122.75	—569,223	96,164	—666,024	—1,090,341
Penn. R. R. West	1,754	33,760,376	9,842,552	47,620,355	6,693,195	13,327,659	427,628	21,610,916	1,106,732	43,494,819	91.33	4,125,536	1,811,104	2,312,981	4,124,483
Penn. R. R. East	5,361	111,164,481	48,406,216	174,626,274	25,784,976	49,523,820	1,494,536	79,419,120	4,377,611	163,816,981	93.81	10,809,293	5,347,149	5,455,906	7,709,986
Perkiomen	41	474,784	43,195	511,192	32,500	28,046	120	217,391	1,901	280,186	54.81	231,007	10,800	220,207	82,849
Peoria & Pekin Union	19	193,293	24,916	586,779	96,849	233,536	5,064	469,989	.....	838,005	142.81	—251,227	57,000	—308,226	—185,499
Pere Marquette	2,232	11,969,170	2,492,658	15,638,076	2,080,908	3,213,229	163,799	6,768,255	432,792	12,715,728	81.31	2,922,347	297,802	2,622,971	1,314,854
Phila. & Reading	1,127	26,384,621	5,242,934	33,649,604	3,615,184	9,252,983	214,677	17,500,945	793,032	31,477,408	93.54	2,172,197	859,369	1,312,734	2,550,964
Pitts. & L. Erie	224	11,206,559	1,201,514	13,558,112	2,890,376	4,109,744	86,445	4,908,096	261,187	12,263,393	90.45	1,294,719	453,000	841,486	—2,353,612

Government Ownership Propaganda Mailed Under Senatorial Frank

A protest was made in Congress on August 13 by Representative Denison of Illinois, that the Public Ownership League of America, with headquarters in Washington, has been distributing under the frank of a Senator a pamphlet of 44 pages containing an argument in favor of government ownership of railroads filed with the Senate Committee on Interstate Commerce at its railroad hearings during the spring by Albert M. Todd, president of the League. Mr. Denison declared this to be a very serious abuse of the franking privilege because the pamphlet was sent out, not by the Senator himself, but by the league, which also sent separate letters under paid postage in which Mr. Todd stated that he was sending the pamphlet in a separate envelope. Mr. Todd appeared before the Senate committee on February 21, and was not allowed by the committee to present his statement in full. He was allowed about half an hour for an oral statement, and then filed his written document, of which Congressman Denison says he is informed at least 20,000 copies have been sent out.

Track Supply Association Exhibit

The following names should be added to the list published in last week's issue of the firms who have space in the exhibit of the Track Supply Association, which will be presented at the Auditorium Hotel, Chicago, at the time of the thirty-seventh annual convention of the Roadmasters' and Maintenance of Way Association on September 16-19, inclusive.

Ajax Forge Company, Chicago, Ill.
Blaw Knox Company, Pittsburgh, Pa.
Buda Company, Chicago, Ill.
Carnegie Steel Company, Pittsburgh, Pa.
Cleveland Frog & Crossing Company, Cleveland, Ohio.
Elliott Frog & Switch Company, St. Louis, Mo.
North American Engine Company, Algona, Iowa.

National Safety Council

The National Safety Council headquarters, 168 North Michigan avenue, Chicago, Ill., announces its Eighth Annual Safety Congress, to be held at Cleveland, Ohio, October 1, 2, 3 and 4. About 3,000 men and women are expected to attend, and 160 of these are named in the list of speakers. There are to be four general sessions, four round tables and 35 sectional meetings. All of the general sessions are to be in the afternoon and the sectional meetings in the forenoon.

The first meeting of the Steam Railroad Section will be held at 9:30 a. m., October 2, and R. C. Richards, chairman of the section, will preside. The program of this and the two subsequent meetings of the steam railroad section are as follows:

Thursday Morning, October 2, 9:30 o'clock: Reports of officers and committees. Address, "Aims and Purposes of the Safety Section of the U. S. Railroad Administration," by A. F. Duffy. "Value and Necessity of Safety Agents," by M. A. Dow (N. Y. C.). "Co-operation of Officers and Employees," by R. H. Doolittle (Colorado Southern).

Friday Morning, October 3: "Organized Labor's Interest in Safety Work," by W. G. Lee, president, Brotherhood of Railway Trainmen. "Safety Suggestions—How They Should Be Treated and Disposed Of," by T. H. Carrow (Pennsylvania). "Methods of Selecting Committees and Maintaining Interest in Safety," by Robert Scott (A. C. L.).

Election of officers.

Friday Afternoon, October 3: Round-Table Discussion, J. T. Broderick (B. & O.) presiding. Members are requested to hand the secretary any subject they wish to discuss at this meeting.

Saturday Morning, October 4: Report of nominating committee. Addresses on "Causes of and Remedies for Accidents in Engine and Train Service"; "Inspection of Tools Used in Shops and on Track," by G. L. La Fountaine (Great Northern); "Motor and Hand Car Accidents," by J. L. Walsh (M. K. & T.).

Master Blacksmiths' Convention

The twenty-fifth annual convention of the International Railroad Master Blacksmiths' Association opened at the Hotel Sherman, Chicago, on August 19, with approximately 400 members and guests in attendance. At the first session the association was welcomed by a representative of the mayor and an address was presented by President W. C. Scofield. A more complete report of the proceedings with abstracts of the papers will appear in next week's issue.

Traffic News

C. E. Warner has been appointed traffic manager for the Southwestern Interstate Coal Operators' Association, Kansas City, Mo., with office at Kansas City.

The railroads centering in Montreal have announced increases in their rates for cartage. On carload lots the increase is from 4.5 cents per 100 lb. to 5 cents; and on l. c. l. from 6 cents to 7.

The movement of fruit eastward over the Union Pacific is now somewhat handicapped by the destruction by fire of ice houses at Ogden on August 5, part of the buildings being owned by the railroad and part by the Utah Ice & Cold Storage Company and leased to the Pacific Fruit Express Company; estimated total loss about $90,000.

The Delaware Railroad (Pennsylvania System) extending from Wilmington, Del., southward 95 miles, was compelled to suspend freight traffic almost completely for several days last week because of floods and washouts. Losses of crops and destruction of roads, bridges and buildings caused by the storm, aggregated in Delaware, according to estimates made on August 16, to more than $2,000,0000.

For the month of July, the Troop Movement Section of the Railroad Administration reports the movement of 949,660 soldiers on the railroads within the United States, exceeding the number of men carried in June by 35,000 men. This number included 299,009 men returning from overseas, and 411,642 men discharged from the army. The remainder were included in movements between camps, etc. During July 1,173 special trains were run to carry troops, and the average number of passengers per train was 421 men; average distance per train 603 miles.

The Omaha (Neb.) District Freight Traffic Committee to correct what seems to be a general misunderstanding on the part of shippers, has issued the following instructions:

"Tariffs issued by administration publishing agents such as the Western Freight Traffic Bureau, Transcontinental Freight Traffic Bureau, etc., will only be furnished to shippers by such bureau when the request for them is approved by the District Freight Traffic committee in whose territory the shipper is located, and freight tariff publications issued by individual railroads should be secured direct from the railroads issuing these tariffs.

The Plumb plan for government ownership and tripartite operation of the railroads was vigorously condemned in resolutions recently adopted by unanimous vote by the Texas Industrial Traffic League at a meeting held in Dallas, Tex., August 11. The resolutions adopted, furthermore, condemned any and all plans submitted to Congress which advocated government ownership or plans for guarantees by the government of the earnings of railroad properties, believing that such guarantees will inevitably lead to government ownership. The league at this meeting also adopted resolutions opposing the proposal in the Esch-Pomerene bill conferring upon the Interstate Commerce Commission jurisdiction over water carriers and making port to port rates subject to the provisions of the Act to Regulate Commerce.

The St. Louis, (Mo.) Traffic Club's special committee, appointed to investigate the Esch-Pomerene and Poindexter bills now pending before Congress, in reporting the results of its deliberations stated that the Esch-Pomerene bill is the most comprehensive bill which has been submitted to this session of Congress. The committee endorses especially the proposed plan to pool equipment and terminals. It is felt that competitive conditions should be restored as promptly as possible and in order to secure its restoration the plan which contemplates the pooling of earnings should be eliminated entirely from the bill. The report of the committee furthermore did not concur in resolutions recently adopted by other traffic club committees which advocate the insertion of a provision requiring the commission to take cog-

nizance of the cost of labor in the making of rates. The Poindexter bill was also highly recommended and the suggestion was made that Congressmen be emphatically advised of this support of the bill. In reporting its deliberations on the Poindexter bill the committee said: "Today flagrant fourth section violations exist, based on fictitious water competition. Because unduly favorable rates can be made to such centers, carriers have been unwilling to readjust such rates, because no intermediate territory has been involved. Routes so circuitous as to make inadvisable the application of rates to intermediate points, are not desirable under any conditions. Your committee is not unmindful of the advantage in the past of some of these indirect routes, but their necessity will be obviated in the pooling of equipment and terminals if the Esch-Pomerene bill is approved." Copies of the resolutions as adopted are to be sent to all Congressmen and Senators.

Weekly Traffic Report

The movement of traffic, both passenger and freight, was somewhat retarded during the week ended August 11, owing to the strike of railway shopmen, according to a report to Director General Hines. The Allegheny, Pocahontas and Northwestern regions showed a reduced movement in freight traffic. In the Northwestern region, while the prospects were that the loadings would show a substantial increase over the same week last year, the strike interfered with operations, with the result that the total loading showed a decrease of 2,232 cars under the same week last year.

While the western portion of the Allegheny region was affected by the strike, statistics furnished the director general show that grain loadings into vessels increased 616,000 bushels for the week ended August 11 over the previous week. Revenue freight handled in this district shows an increase of 16,679 cars over the previous week.

In the Pocahontas region, as compared with the same period last year, tidewater coal dumped during the week ended August 11 decreased 9 per cent, domestic coal loaded decreased 14 per cent, and other freight loaded decreased 8 per cent.

In the Southern region, while the movement of peaches from middle Georgia was one of the largest in the history of the industry during the week mentioned, the supply of equipment was ample, although some difficulty was experienced in obtaining sufficient ice for refrigerator cars.

N. I. T. League Opposes Plumb Plan

The National Industrial Traffic League has actively entered the fight against the Plumb plan propaganda for government ownership by sending to members of the league a statement by the president of the league and expressing the views of the league's membership on this subject, as heretofore indicated by formal action taken and reaffirmed on numerous occasions. Co-operative effort is advocated to bring about a defeat of this or any other plan for the government ownership of railroads. This circular says in part:

"The members of the league, while differing in their opinions regarding some details of the federal legislation affecting railroads which should be enacted, have been unanimous in their opposition to government ownership of railroads. This opposition of the league to government ownership applies to such ownerhip in any form and therefore covers the so-called Plumb plan proposed by the railroad brotherhoods and supported by the American Federation of Labor.

"This plan is so radical and fantastic that it is difficult to take it seriously, but its advocates are conducting a vigorous and systematic campaign in its favor and already claim the support of a very large number of voters. It is publicly stated that if the present Congress does not yield to the demand that this plan be adopted, it will be made a political issue and men will be elected to office pledged to support the plan. Under these circumstances it is not wise to ignore the matter, but active measures should be taken to combat this proposal. Will you therefore give the subject prompt and earnest consideration and have the interests which you represent register with their representatives in Congress their opposition to this plan or any other plan of government ownership. . . ."

Foreign Railway News

France is sending locomotives and railway carriages to Switzerland to be repaired at the Federal factories of Yverdon, Olten, Zurich, and Schaffhause.

The Government Railways of Java, says the Far Eastern Division of the Bureau of Foreign and Domestic Commerce, have been desirous of purchasing large quantities of American rails and car materials, but as American manufacturers have been unwilling to comply with the required specification the Netherlands Government has been obliged during the war to buy heavier rails than it needed, and also equipment which was unsatisfactory, especially chilled car wheels. No further purchases are being made in the United States at present.

The safety of passengers on the railroads of Great Britain and Ireland, often the subject of comment in past years, is brought to attention at this time by a note in the Railway Gazette (London) to the effect that no fatal passenger train accident has happened in the United Kingdom since that at Aberdeen, Scotland, on July 6, 1918, or considerably more than a year. Prior to the Aberdeen accident there had been none for a year and 16 days. These records are made in the face of adverse conditions; unusual density of traffic during the last two years, depleted staffs and the unavoidable lowering of standards in some departments of maintenance. Following a collision on October 26, 1907, the railroads of the United Kingdom were free from fatal passenger train accidents for one year and eight months; and a record nearly as good was made as far back as 1901.

Indian Built Rolling Stock

A company has been formed says the Times (London) Trade Supplement for the manufacture of special rolling stock for India which contains no wood.

Transport Director for Ireland

H. G. Burgess, Minister of the Irish Traffic of the London & North Western has been appointed Director of Irish transport of the Ministry of Ways & Communications, and will be responsible for the whole territory of Ireland.

Electrification in Italy

It is announced officially says the Times (London) Trade Supplement that the Italian Government has authorized the electrification of 3,750 miles of line. A large amount of the water power from the Torento is available. There are at the present time only about 300 miles being worked by electricity in Italy.

Locomotives for the Uganda Railway

At a recent meeting of the Chamber of Commerce and Agriculture of the East African Protectorate, a statement was made by the Secretary that the difficulty of transportation was due to a shortage of locomotives. Instructions have been issued that orders must be placed with the mother country or with another British state. Sometime ago 50 engines were ordered in England, but up to last month nothing had been heard of them.

Government Ownership in England

On August 1, a petition was circulated through banking and other financial institutions in the City of London for signatures, which requests the government to consider fully the bearing of nationalization on the national production before any irrevocable steps are taken. It requests that the question be not considered by the government until the people of the country have been given an opportunity of expressing their opinions upon it.

China Will Join in Siberian Loan

A dispatch to the Far Eastern section of the Sun, New York, is authority for the statement that the Chinese government has decided to participate with the United States, Great Britain, France and Japan in the loan for the reconstruction of the Trans-Siberian Railway and has replied in this sense to the recent inquiry made at the Foreign Office by the Japanese Minister. China's share in this loan will be $600,000, and the government is making arrangements to raise this money itself rather than to borrow it from one of the Powers.

Channel Tunnel

The Commission which was appointed by M. Claveille, the Minister of Public Works in France, to study the questions involved in the building of the Channel Tunnel, has reported in favor of the enterprise, and M. Claveille has authorized the French Submarine Railway Association which obtained the contract for building the tunnel to begin at once to make fresh trials of the technical processes necessary. The Minister of Foreign Affairs is to consult also with the British government with a view to appointing a Franco-British Commission to conclude the necessary agreement for the tunnel.

Increase of Railwaymen's Wages

The Minister of Labor of Great Britain announced recently in the Houses of Parliament the following average rates of wages for railway men in July, 1914, and July, 1918, respectively:

Transport railway service	July, 1914, per shift. Per week	July, 1919, per shift. Per week
Engine drivers	35s. to 50s.	68s. to 83s.
Guards	25s. to 35s.	58s. to 68s.
Signalmen	25s. to 30s.	58s. to 63s.
Porters	20s. to 26s.	53s. to 59s.
Carting (12 large towns) one-horse drivers	24s. to 27s.	54s. to 57s.
	Per hour	Per half day
Dock laborers (8 principal ports)	6d. to 8d.	5s. 10d. to 7s.

Electric Regeneration on Swiss Single Phase Railways

The first experiment, on the recovery of the electric energy, which the braking or down-grade movement renders available, were made on the Lötschberg line of the Swiss Federal Railways, on June 27. The system tried was that of the Maschinenfabrik Oerlikon, and the success is described as complete. The tests were conducted with the locomotive which the Oerlikon Company, in conjunction with the Lokomotivfabrik Winterthur had built for the Gotthard Railway, and which has since May been in regular service in the Bern-Thun Railway. In the tests the engine was run at different speeds, up to 70 km. per hour, down hill, first empty, and then with a load of 310 tons, without making use of the mechanical brakes or of any brake resistances. It is said that the remarkably simple devices operated to complete satisfaction from the start, and the detailed account of the tests will hence be a matter of considerable interest.

Railway Development in Burma

The Government of Burma, says the British Board of Trade Journal, has decided to encourage the development of railway communication by the adoption of the general British policy in the case of colonies—that in a country with a generally scanty population and no towns of considerable importance, strategic points on frontiers and general trade routes, etc., should be linked up. It is thus calculated to develop the country by first establishing the lines of communication—a policy for which, according to opinion in British India, there is ample scope also in British India itself, where, it is pointed out, the construction of feeder lines to the main lines on a wholesale scale should be prosecuted. The conditions for railway development in British India and Burma are very different from those in Australia and Canada, where large areas of useful land—arable, forest or mineral—are opened up by railways regardless of the uninhabited condition of the country. The assumption that rich territory, once opened up by means of communication, will find its own development, is an axiom which, in the case of European populations, never fails. Conditions in India are different, in that the population, even when not apathetic, requires both education and capital, and the railways therefore hesitate to launch out in the matter of undeveloped areas, although these areas may urgently require means of communication for purposes of development.

A New Arabian Railway

A railway from Aden, the principal port in Arabia, to Lahej, the capital of the Abdali tribe in southwestern Arabia, has recently been opened, says Consul Addison F. Southard, writing to Commerce Reports on April 30. The road is about 30 miles in length and is the development of a short military line built from Aden to Sheik Othman in 1915 to supply British forces operating from the latter place against the Turks. The railroad was built by the Royal Engineers of the British Army, and the first few miles were built under shell fire from the Turks. After the signing of the armistice and the surrender of the Turkish forces, the railway was continued to Lahej and has been recently opened for freight and passenger traffic.

The railway is of narrow gage, and the equipment is largely from the Bombay, Baroda & Central India Railway, of India. As conditions improve and the amount of traffic increases, it is likely that new equipment will be needed to replace the second-hand rolling stock.

British Munition Factory to Produce Steel Cars

It is understood, writes Trade Commissioner H. G. Brock from London under date of July 5, that negotiations for the acquisition of the state ordnance factory at Nottingham by the steel manufacturers, Cammell, Laird & Co. (Ltd.), of Sheffield, Birkenhead and Penistone are far advanced. According to the Times of June 28 the factory will be adapted to the manufacture of steel railway cars of the most approved type; later passenger coaches may also be manufactured, but the immediate object is the production of steel freight cars, as the springs, tires and other parts can be built at the Sheffield works of the firm.

During the war Cammell, Laird & Co. undertook the designing, erection and management of the ordance factory at Nottingham without remuneration of any kind. The factory was originally laid out for the manufacture of shells, but in its second phase started the construction of 18-pounder guns, of which 11 per week were being produced at the signing of the armistice, with a weekly output of 5,000 9.2-inch shells and 13,500 6-inch shells.

Railway Dividends in England

The accompanying tables gives a list of the dividends paid by various important railways in Great Britain for the first half of 1919, as compared with the same period of 1918, and to the entire year of 1918.

English Railway Dividends

	1st half, 1918 %	1st half, 1919 %	Year 1918 %
Gt. Central (1889) Pref.	2	2	4
Great Eastern	½	½	2½
Gt. Northern Defd. Ord.	nil	nil	2¾
Great Western	2¼	2½	7¼
Lancashire and Yorks.	1⅝	1⅝	4½
London & N. Western	2¾	2¾	7
London & S. Western	2	2	5⅞
London, Brighton & S. C.	1¼	1¼	5¼
London, Chatham, & D. 1st Pref.	2	2¼	4½
Metropolitan	½	½	1¼
Midland Deferred	1⅝	1⅝	4¼
North-Eastern	3	3¼	7
South-Eastern Ord.	¾	1	4
Central London, Ord.	1¾	2	4
Lond. Electric	¾	1	2
Metrop. District	nil	nil	nil

It will be noted that in several instances the dividends for the first half of this year are higher than those of last, although on account of the arrangement with the government one year's results should differ but little with those of another since 1913. There are two sources by which the companies have derived extra income, one arising out of the modification of the government arrangement whereby the companies

receive an allowance in respect of capital invested in property since the railways were taken over and worked by the government, and secondly from interest upon renewal and reserve funds, which, owing to the arrears of maintenance which have accumulated during the war, amounts to quite an appreciable sum. Some of the companies, however, have indicated that the increase for the first half of the year does not necessarily mean an increase for the year.—(*London Post*).

Brazilian Roads Injured by War

War conditions in Brazil for five years have seriously injured the railroads there, especially those owned by British capital, and have not only made it difficult to maintain the existing lines in good repair but have diminished the chances of getting fresh capital from abroad to invest in Brazilian transportation systems, according to a British writer in a London financial journal. This is due to the fact that while expenses and costs have risen and caused the companies to fail to earn dividends, no corresponding increases in rates have been granted which would enable the companies to recoup their losses.

"The problem now to be solved," says this writer, "not only by the companies but also by the Brazilian Government, is how can capital be raised for new construction to make up the leeway for the last five years and to provide for the normal increase of the future.

"There is no doubt that the attraction to investors in investing in Brazilian railways has been greatly diminished by the results of the last five years. There would seem to be only one way of effecting an improvement, and that is by a general raising of the tariffs. Generally speaking, the present situation is not due to diminution in traffic, but to the heavy burden of increasing expenses and to the fall in the exchange. The raising of the tariffs by a moderate amount would restore the earning power of the railways without imposing any undue burden upon their customers. The government should not (and being thoroughly alive to the situation, probably would not) oppose such a proposition. In fact, it has already shown that it recognizes the necessity. In the president's lucid message, recently issued, it is stated that a 20 per cent augmentation of tariffs has been put into force on the Central Railway, belonging to the government, and a similar increase authorized in the case of the Sul de Minas system and of the F. de l'Est Bresilien.

"The last five years have been a lean and unsatisfactory period for the English railways in Brazil, which have not only suffered from the same troubles that similar undertakings in other countries have endured but have also had special causes for loss. The restriction of tonnage and the high rates for freight have been very serious matters for companies which have to import most of their supplies of material, etc., from Europe. In addition, the fall in the Brazilian exchange has reduced their receipts by a large amount when translated into sterling. It might appear that the fall in exchange would not be serious, since the expenses would also be automatically less when valued in sterling. This is not correct. While all the receipts are paid in current Brazilian money, on the other hand expenses (excepting local wages and supplies bought in the country) have to be paid for in Europe in gold, and all the companies before disbursing any profit to the shareholders have to satisfy in gold the interest and amortization payments on their debentures. Finally, unlike the railways in England, they have been mostly unable so far to recoup themselves for higher expenses by raising their rates.

"The result has been unfavorable to their financial position. The reports for 1918 of the three principal companies, the San Paulo Railway, the Leopoldina Railway and the Great Western of Brazil, show the following comparisons between the five past years and the five years ended 1913:

	Average length of line	Average gross receipts	Average working expenses	Average net receipts	P. c. of expenses
1909-1913 (Inc.)					
San Paulo	153	£2,066,989	£1,268,213	£798,776	61
Leopoldina	1,631	1,492,104	925,751	506,353	66
Gt. Western ...	953	644,282	427,868	216,414	66
1914-1918 (Inc.)					
San Paulo	153	1,610,217	1,108,592	501,625	69
Leopoldina	1,820	1,526,543	1,062,045	464,498	70
Gt. Western ...	1,010	658,796	485,056	173,740	73

Equipment and Supplies

Freight Cars

The Solvay Collieries Company, Syracuse, N. Y., is inquiring for three steel tram cars.

The Pittsburgh Construction Company, Pittsburgh, Pa., is inquiring for two 40-ton box car bodies.

The Pennsylvania Coal Company, New York, has ordered 200 mine cars from the American Car & Foundry Company.

The Jamison Coal & Coke Company, Greensburg, Pa., has ordered 125 mine cars from the American Car & Foundry Company.

The Cosden Company, Tulsa, Okla., has ordered 40, 40-ton, 8,000-gal. insulated tank cars from the American Car & Foundry Company.

The Commerce Petroleum Company, Chicago, has ordered 50 40-ton, 8,000-gal. tank cars from the American Car & Foundry Company.

The Imperial Refining Company, Ardmore, Okla., has ordered 100 40-ton, 8,000-gal. tank cars from the American Car & Foundry Company.

The Johnson City & Big Muddy Coal & Mining Company, Chicago, has ordered 250 mine cars from the American Car & Foundry Company.

The James B. Berry Sons Company, Oil City, Pa., has ordered 50 40-ton, 8,000-gal. tank cars from the American Car & Foundry Company.

Hernandez, Robinson & Co., Inc., 29 Broadway, New York, advises that it is in the market for 5 second-hand standard gage flat cars, 30 ft. in length, for export.

The Arkansas City Pipe Line Company, Arkansas City, Kan., has ordered twenty 50-ton, 10,000 gallon tank cars from the American Car & Foundry Company.

The Providence Gas Company, Turks Head building, Providence, R. I., advises that it desires to purchase second-hand, if possible, an all-steel drop-bottom gondola car of 50-tons capacity. Jesse L. Johnson, purchasing clerk, may be addressed.

The Pennsylvania Equipment Company, 1420 Chestnut street, Philadelphia, Pa., desires to lease 150 8,000-gal. tank cars, 90 clean and 60 for crude or fuel oil, for a period of six months to one year, deliveries to start about October 1.

Passenger Cars

The Eastern Massachusetts Street Railway, Boston, Mass., is inquiring for 100 street car bodies.

Locomotives

The Pennsylvania Equipment Company, 1420 Chestnut street, Philadelphia, Pa., is in the market for one Consolidation locomotive weighing about 70 to 75 tons, with 44 to 48 in. driving wheels and with a steam pressure of not less than 180 lb.

Iron and Steel

The Missouri Pacific has ordered 120 tons of structural steel for deck girder spans from the Virginia Bridge & Iron Company, Roanoke, Va.

Supply Trade News

Paul Mitchell has returned to Chicago and has resumed his duties as traveling representative of the Chicago sales office, of the **Independent Pneumatic Tool Company,** Chicago. Mr. Mitchell was a sergeant in the American Expeditionary Forces in France.

The Pettibone-Mulliken Company, Chicago, has awarded a contract to Westinghouse, Church, Kerr & Company, New York, for the erection of a one-story steel foundry at West Division street, Chicago, which will cost about $200,000, including equipment.

Herbert Duckworth has been appointed sales manager of the grinding-wheel division of the **Norton Company,** Worcester, Mass.; **Howard W. Dunbar** has been appointed sales manager of the grinding machine division; **John C. Spence** has been appointed superintendent, and **Charles H. Norton** chief engineer, of the grinding machine division.

W. Terry Field, constructing engineer for the American Car & Foundry Company, New York, with office at Detroit, Mich., has resigned to form a partnership with **John R. Fordyce,** formerly Major and Construction Quartermaster at Camp Pike, Arkansas. The new firm will be known as **Fordyce & Field,** consulting and construction engineers, Little Rock, Ark.

Captain Thomas O'Leary, Jr., of the Fifty-First Engineers, has returned to the service of the **New York Air Brake Company,** New York, as western representative on lines west of the Missouri river. Captain O'Leary was adjutant of the Touraine division of the Fourteenth Grand division, Camp DeGrasse, France, operating the French railroad out of that place.

The **Drew Electric & Manufacturing Company,** Indianapolis, Ind., manufacturers of overhead electric railway materials, started work on July 11 on its new factory in Cleveland, Ohio, which it is expected will be finished about September 1. The first unit, now being built, will be a brick and steel structure 80 ft. by 205 ft., with a two-story section devoted to the general offices and engineering department. This building will have about 20,000 ft. of floor space and will include machine and assembly shop and brass foundry. A contract for the second unit of the factory will be let soon. This will be 40 ft. by 60 ft. and will house the hot galvanizing plant.

At the annual meeting of the **U. S. Light & Heat Corporation,** Niagara Falls, N. Y., on August 13, the following directors were elected: **R. C. Caples, E. H. Gold, J. E. Kepperley, C. L. Lane, C. O. Miniger, J. O. Moore, B. J. O'Reilly, J. A. Roberts, G. G. Shepard, J. Allan Smith** and **J. N. Willys;** and the following officers were elected for the ensuing year: **John N. Willys,** chairman of the board of directors; **E. H. Gold,** vice-chairman of the board of directors; **J. Allan Smith,** president; **C. L. Lane,** vice-president and general manager; **R. C. Caples,** vice-president; **B. J. O'Reilly,** treasurer; **R. H. Van Nest,** secretary, and **T. G. Swannie,** assistant secretary and assistant treasurer.

Fred H. Jones, resident manager of the New York territory of the General Railway Signal Company, Rochester, N. Y., and **Park B. Hyde,** product engineer in charge of primary battery construction of the Thomas A. Edison Company, Inc., Orange, N. J., have resigned and have formed the Hyde Battery Company, with offices in the Railway Exchange building, Chicago. The new company will open a factory in Chicago to manufacture caustic soda batteries for railway signaling. Mr. Jones is also vice-president of the Magnetic Signal Company, Los Angeles, Cal., and will represent that firm in the Chicago district with the same headquarters. The Magnetic Signal Company will also open a factory in Chicago to manufacture highway crossing signals, signal accessories and specialties. Mr. Jones will also act as Chicago representative for the **C. H. Whall Company,** Boston, Mass., manufacturers of fibre insulation for railway signaling.

The housing facilities of the **Westinghouse Air Brake Company,** Wilmerding, Pa., are to be extended at once by the erection of a number of new dwellings, for the families of employees. **The Westinghouse Air Brake Home Building Company** has been organized with a capital of $1,000,000 to transact all business relative to the real estate and dwellings, which have been transferred by deed to this company by the Westinghouse Air Brake Company. It includes over 400 houses and considerable vacant property in the borough of Wilmerding and adjacent territory. The officers of the new organization are **A. L. Humphrey,** chairman of the board of directors; **C. A. Rowan,** president; **W. S. Bartholomew,** vice-president, and **H. C. Tener,** secretary. In addition to the first three mentioned above **J. F. Miller** and **G. W. Wildin** are included in the board of directors. **S. R. Gittens** has been appointed manager. Since the Westinghouse Air Brake Company built its first houses for employees in 1890 there has never been an increase in rents and the new company will carry out the same policy.

Consulting Mathematicians

T. Dantzig, G. A. Pfeiffer and **J. F. Ritt** announce the formation of a firm of consulting mathematicians under the name of **Dantzig, Pfeiffer & Ritt** with office at 500 West One Hundred and Sixteenth street, New York. This firm undertakes to handle all problems arising in industry for the solution of which the knowledge of a mathematical specialist may be necessary.

Each of the members of the firm has been privately engaged for some time in work of this nature, in addition to his other professional activities, and it was at the suggestion of clients that the decision was made to set up a consulting service which would extend to the industrial world the resources of modern pure and applied mathematics.

Dr. Dantzig is a graduate of the University of Paris and of the Ecole Superieure d'Aeronautique et de Construction Mechanique. He has taught at Indiana University and at Columbia. During the war he was in charge of the mathematical work of the instrument section of the U. S. Ordnance.

Dr. Pfeiffer received the degree of mechanical engineer from the Stevens Institute of Technology and the degree of Doctor of Philosophy from Columbia University. He has taught mathematics at Harvard, Princeton, and Columbia. He is an associate editor of the Annals of Mathematics.

Dr. Ritt took the degree of Ph.D. at Columbia University. He was for three years at the Naval Observatory and has since taught mathematics at Columbia. During the war he was one of the chief ballisticians in the U. S. Ordnance.

Trade Publications

BOOK OF BUILDINGS.—The Austin Company, Cleveland, has just issued a new booklet known as Catalog No. 9. It briefly outlines the scope of Austin construction and equipment service. It also contains cross-sections of the 10 Austin standard types of buildings and a description of Austin service to foundry and steel plant operators.

LARGE FERRO-CONCRETE BRIDGE.—The recently completed ferro-concrete bridge over the Ore River in Sweden has an arched span of 90.7m. It belongs to the northern railway system of the country, and crosses the river about 4 km. to the north of the town of Nyaker. There was a parallel-girder bridge at the place, built in 1891 and calculated for axle loads of 12.5 tons and speeds of 20 km. per hour. The new bridge can bear axle loads of 20 tons at speeds of 100 km., and belongs to the longest ferro-concrete bridges in existence, the one over the Tiber at Rome having a length of 100 m., and the Auckland bridge in New Zealand, a length of 97.5 m. The cost was estimated not to exceed 850,000 kroner in 1914, but owing to the war, the expense will probably amount to 2,100,000 kroner.—*Engineering, London.*

Railway Construction

ASHERTON & GULF.—Plans are now under consideration for the extension of this road from Asherton, Tex., 50 miles west of Eagle Pass, and from Artesian Wells, Tex., east to Beeville, approximately 100 miles.

CANADIAN PACIFIC.—Contracts have been let for building new lines for the Canadian Pacific as follows: To Stewart & Welch, Vancouver, B. C., from Counsul, Sask., east for 30 miles; from Leader, south 25 miles; from Lanigan, northeast 50 miles; from Milden, southwest 34 miles, and from Acme, Alta., to Drumheller, 37 miles. Contracts have also been given to the Northern Construction Company, Winnipeg, Man., to build from Russell, Man., north 12 miles, and to the Canadian Construction Company, Winnipeg, to build from Rosetown, Sask., south 25 miles.

MERRILL COAL MINES, INC., RAILROAD.—This company is asking for bids on August 20, to build a three-mile line, from a point 75 miles from Huntington, W. Va., on the Guyon Valley branch of the Chesapeake & Ohio. The work involves the handling of 50,000 cu. yd. of material, the construction of 2,500 yd. concrete piers, a 400-ft. steel bridge, 50 houses, one stub tipple and a sub-station. L. B. Conway is president, Danville, Va., C. W. Jones, vice-president and general manager, and W. C. McCall, chief engineer, Logan, W. Va.

MISSOURI, KANSAS & TEXAS.—This road is now constructing a double track through the town of Burkburnett, Okla., in order to relieve the congested traffic conditions that have existed there since the development of the oil fields in that locality. The length of this work is about three and one-half miles.

MOORE HAVEN RAILWAY.—Organized to build a line from Moore Haven, Fla., on the Atlantic Coast Line, southeast along the shore of Lake Okeechobee to Ritta, 26 miles. The work will include building a steel bridge with a 30 ft. draw. The promoters expect to develop a traffic in perishable truck and general farm products. The work is temporarily held up, pending the settlement of present strikes. John J. O'Brien is president, Moore Haven.

OKLAHOMA RAILWAY COMPANY.—Plans are now being completed for the rebuilding of the terminal station at Oklahoma City, Okla., at an approximate cost of $250,000.

RED RIVER LUMBER COMPANY.—Surveys have been completed for the last seven miles of a line from Westwood, Cal., to Chester. The extension will be of standard construction with a maximum grade of 1.75 per cent, and maximum curvature of 10 deg. The complete line will be about 15 miles long of which eight miles has already been completed and is in operation. The construction work is being done by the company's forces.

The Bagdad Railway.—It is obvious that the railroad as now projected and built (the exact facts not yet being fully known as to the continuity of the line through to Bagdad to meet the military lines built by the British during the War) was due to German money and influence in Turkey. But the fruits of this great project are to be reaped primarily by the regions through which the railroad runs, and the regions which have railway communication connecting with it as a trunk line; and, secondarily, by international trade. This railroad would run when completed through the dominions of several powers, and therefore ought, as much as Constantinople and the Dardanelles, to be internationalized. Whatever the powers given to any mandatory under the League of Nations Covenant, assuming it to come into operation, one of such powers to be expressly stipulated in the decree appointing the mandatory, should be the governmental power of consenting to the internationalization of such an important commercial trade route. *The Future of the Ottoman Empire, by Henry W. Jessup, in the Annals of the American Academy of Political and Social Science.*

Railway Financial News

BOSTON & MAINE.—The Wall Street Journal, under a Boston date line, prints the following:

"Case of the Hampden Railroad, which brought suit against the Boston & Maine for an original claim of $3,798,000, for alleged breach of contract, has evidently not been finally disposed of.

The Massachusetts Supreme Judicial Court has now withdrawn its recent ruling against the Hampden.

"Although this at first appears as having a possibly unfavorable bearing on the Boston & Maine situation, it is pointed out by people in close touch with the situation that this does not necessarily mean that there will be a rehearing of the case, or that the ruling against the Hampden will be essentially changed. The Boston & Maine people have received no notice of a rehearing, and it is legal opinion that there will not be any. It is not unusual for a court to withdraw a ruling, owing to some subsequent objection made to wording or technical point."

BOSTON & MAINE.—Legal matters continue to hold the reorganization of this company in check. Although the Massachusetts Supreme Court convened in special session July 29 to hear arguments on the petition of minority stockholders of the Boston & Maine for a review of the Public Service Commission's decree approving the reorganization of the road, Attorney Crooker, representing the minority stockholders, told the court that he had not had time to prepare his argument and asked for a postponement to October. It was then agreed that the matter would be submitted on briefs. Attorney Crooker had until August 18 to file his. Attorney George L. Mayberry, for the railroad and the public service commission, has already filed his.

The Railroad Administration has filed with the Massachusetts Public Service Commission a statement of the Boston & Maine for the quarter ended June 30, which shows that the net income for the quarter amounts to $936,184 against a deficit of $361,268 for the corresponding period last year.

CHICAGO & WESTERN INDIANA.—Director General Hines under date of August 19 has written the following letter to the financial editor of the New York Sun:

"In today's edition of your paper under the sub-heading of 'Chicago & Western Indiana,' appears a statement as follows:

"'It was learned in banking circles yesterday that the United States Railroad Administration has arbitrarily advanced one year the life of an issue of $15,000,000 6 per cent notes which mature on September 1, and which were put out by a banking group exactly a year ago. This is an entirely new departure in meeting an indebtedness by the Railroad Administration, and Wall Street wondered yesterday just how far it could or would be extended. It was stated that no matter what the circumstances none of the bonds would be paid until one year after they are due, September 1, 1919. It was said by bankers who aided in floating the loan that the distribution of the notes had been extremely wide, and that the average of individual holdings would not exceed $10,000.'

"It is proper that I should say to you that the statement above quoted, so far as it purports to state any past action or proposed action of the Railroad Administration, is not warranted by any facts in connection with the matter, and is entirely erroneous. The Railroad Administration, in response to a request by the Chicago & Western Indiana Railroad Company for its approval, in accordance with Section 7 of the federal control act, of a renewal for one year at 7 per cent interest, without discount, of $15,000,000 of notes of said company maturing September 1, 1919, has stated in a letter of date August 15, 1919, to Messrs. E. H. Lee and W. H. Lyford, finance committee of the Chicago & Western Indiana, that the director general approves 'as consistent with the public interest' the proposal as above set forth.

"In view of these facts, I am sure you will want to correct the erroneous statement contained in your paper."

Railway Officers

Railroad Administration

Central

Judge John Barton Payne has resigned as general counsel of the Railroad Administration on account of assuming the positions of chairman of the Shipping Board and president of the Emergency Fleet Corporation. **E. Marvin Underwood,** heretofore general solicitor, has been appointed general counsel to succeed him. Judge Payne has consented to act as special counsel for the railway, giving such advice and assistance as his new duties will permit. Mr. Underwood was born on December 11, 1877, in Douglas County, Ga. After graduating from Vanderbilt University in 1900 he attended law school, receiving his degree of bachelor of laws in 1902. He then spent the following year in studies at the Faculte de Droit of the University of Paris, and upon his return to this country began the practising of law at Atlanta, Ga. He later became a member of the firm of King, Spalding & Underwood, of that city, and as such engaged in railroad practice, representing, among other companies, the Seaboard Air Line Railway. On February 24, 1914, he was appointed assistant attorney-general of the United States and as such represented the government in a number of important litigations before the Supreme Court of the United States, notably the case in which the constitutionality of the Adamson Law was upheld and the Pacific Terminal Case. In September, 1917, he was appointed general counsel of the Seaboard Air Line and in April, 1919, was appointed general solicitor of the United States Railroad Administration.

E. M. Underwood

Regional

F. E. Desey has been appointed general assistant to Percy R. Todd, director of the New England district of the Eastern Region, with office at Boston, Mass.

Charles G. Weinbrenner has been appointed inspector in the Southwestern region representing the Secret Service and Police Section of the Division of Operation, with headquarters at 1041 Railway Exchange building, St. Louis, Mo.

The Southwestern Regional Association of Chief Special Agents, recently organized, has elected the following officers: **E. R. Hines,** chief special agent, St. Louis-East St. Louis Terminal District, St. Louis, Mo., chairman; **J. S. Webster,** chief special agent on lines under the jurisdiction of Federal Manager W. R. Scott, Houston, Tex., vice-chairman, and **W. H. Boullt,** acting chief special agent on lines under the jurisdiction of Federal Manager A. Robertson, St. Louis, Mo., secretary.

Operating

B. M. Brown has been appointed assistant superintendent on the Galveston, Harrisburg & San Antonio, with office at El Paso, Texas, vice **R. U. Lipscomb,** promoted.

W. M. Stillman, who has been released from military service, is restored to the position of assistant superintendent of the Stockton division, on the Southern Pacific (lines south of Ashland), with headquarters at Stockton, Cal., vice **E. D. Leavitt,** transferred.

G. LeBoutillier, superintendent of the Cleveland & Pittsburgh division of the Pennsylvania Lines West, Northwest system, with office at Cleveland, O., has been appointed superintendent of the Pittsburgh division, Southwest system, and the Pittsburgh, Chartiers & Youghiogheny Railroad, with office at Pittsburgh, Pa., vice **J. C. McCullough,** promoted.

Henry A. Koach, inspector in charge of the Buffalo (N. Y.), district, of the Secret Service and Police Section of the Division of Operation, has been transferred to Chicago as chief of the Chicago district. Mr. Koach was formerly assistant chairman of the Railway Ticket Detective Bureau, Chicago, from 1903 to 1918 with offices in Chicago and from the latter date to January 1, 1919, he was an inspector in the passenger traffic department of the Division of Law with headquarters at Washington, D. C.

Charles Henry Calkins, whose appointment as superintendent on the New York Central, has already been announced in these columns, began railway work in December, 1889, as a telegraph operator at Pierrepont Manor, N. Y., on the Rome, Watertown & Ogdensburg, and has been in the continuous service of that road and its successor, the New York Central, ever since. In July, 1896, he was promoted to train despatcher and later served consecutively as chief despatcher and assistant trainmaster, at Watertown. He was promoted to trainmaster at Richland in December, 1906, and the following October was transferred to Watertown. On October 1, 1913, he was appointed chief trainmaster, at Buffalo, and since November, 1916, served as assistant superintendent at the same place until his recent appointment as superintendent of the Adirondack division, with office at Utica.

Engineering and Rolling Stock

R. W. Lipscomb, assistant superintendent on the Galveston, Harrisburg & San Antonio, at El Paso, Texas, has been appointed chief assistant mechanical superintendent on the Southern Pacific Louisiana Lines and Texas Lines, with headquarters at Houston, Texas, vice **J. P. Nolan,** retired on pension.

B. F. Kuhn, master mechanic on the New York Central lines west of Buffalo, with office at Ashtabula, Ohio, has been appointed assistant superintendent of motive power, with headquarters at Cleveland, and **F. M. Crandall,** assistant master mechanic at Collinwood, has been appointed master mechanic, with headquarters at Ashtabula, and jurisdiction over the Franklin division, including the Oil City branch, the Franklin & Clearfield branch, Ashtabula and Youngstown yards, and the Alliance division.

Traffic

W. E. O'Day has been appointed auditor of disbursements at the Chicago Regional Accounting department of the **American Railway Express Company,** with headquarters at Chicago, succeeding **H. E. Cartwright,** who has been transferred.

Corporate

Executive, Financial, Legal and Accounting

George M. Taylor has been appointed receiver; **H. G. Lunt** has been appointed general attorney and **H. R. Stroupe** has been appointed auditor of the Colorado Springs & Cripple Creek District Railway. All will have offices at Colorado Springs, Colo.

Operating

W. B. Gill, superintendent of transportation of the Bauxite & Northern, has been appointed superintendent, with office at Bauxite, Ark., succeeding **J. R. Gibbons,** deceased.

J. W. Cummings has been appointed superintendent of the Colorado Springs & Cripple Creek District Railway, with headquarters at Colorado Springs, Colo.

EDITORIAL

Railway Age

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Damming the Stream at Its Source

In spite of the well-recognized fact that a return to normal conditions in many lines of endeavor is being hindered seriously by the existing shortage of unskilled labor, a bill to suspend immigration for the next two years has just been introduced in Congress. Probably there never was a time in history when the country was less prepared for such legislation. Trading on the shortage of labor has succeeded in raising its pay requirements until improvement projects which ordinarily would prove paying investments have become out of the question. As a result, a vast amount of work which, if carried out, would help enormously in restoring somewhere near pre-war conditions is being deferred. Even under normal conditions, the percentage of native born in the ranks of unskilled labor is remarkably low, and employers have come to depend largely on foreign sources in recruiting unskilled labor. If the principal source of supply is made unavailable by law, it seems to be beyond question that the situation will grow worse before it becomes improved.

An Engineer on the Commission

While the idea is not new, Engineering Council has taken the initiative in suggesting to the President that he appoint an engineer as a member of the Interstate Commerce Commission. This suggestion has much to commend it, not because of the recognition it might give to the engineering profession but because of the opportunity it would afford to give to the Commission the experience and the analytical point of view of one technically trained and familiar with the construction of railways, the relation of standards of construction such as gradients and curvature and of maintenance on operation, and the development of facilities to meet public demands. At present much of the work of the Interstate Commerce Commission is directly or indirectly of an engineering nature. This is particularly true of valuation work, but it also applies to the coordination of existing facilities and the enlargement of the existing plants to care for growing traffic adequately, etc. If the Commission is to do constructive work in the future in cooperating with the carriers in the development of the transportation system of the country to meet the needs of the traveling and shipping public it will be necessary to give more attention to matters of this character than has been done in the past. At present the personnel of the Commission is drawn principally from the legal profession, while only one of the members has worked for any considerable period on a railway, facts which have frequently been offered as an explanation of its failure to recognize many practical aspects of the railway problem. It has long been contended that an industry as large and as vital to the country's welfare as the railways should be regulated by those who know its problems first hand, just as the administration of the Federal Reserve Banking System is properly in the hands of men trained in the banking business. It should be possible for the President to find engineers in this country of sufficient breadth of vision and knowledge of the public's needs and of first hand acquaintance with the problems of railway management to qualify for such an appointment. Surely they can be found when men such as Goethals and Hoover have been found to meet other needs in public life, and men such as Samuel Rea, Julius Kruttschnitt, Samuel M. Felton and W. B. Storey have been promoted from engineering to executive positions on the railways themselves.

Are Railroad Fatalities Relatively Numerous

Some interesting mortality statistics for 1917 were recently issued by the National Safety Council which show the deaths resulting from railway accidents in a relationship not generally brought to the attention of the public. Deaths and injuries resulting from railway operation have been given a great deal of prominence by the imposing tables appearing in the accident bulletins of the Interstate Commerce Commission where a total of about 10,000 deaths and nearly 200,000 injuries per annum presents a rather appalling aspect. The National Safety Council, however, shows railway accidents in comparison with those caused by other agencies. Thus railway fatalities totalled 11.5 per 100,000 of population, while fatal automobile accidents total 8.9. Those resulting from vehicles other than railroad cars, street cars and automobiles, average 3.1, thus giving a total of 12 deaths per 100,000 population from vehicles not running on rails. The year 1917 was one of heavy railway traffic and therefore more than the normal number of accidents. The enormous growth in the use of power vehicles, on the other hand, would indicate that automobile accidents will increase. It should be noted in this connection that fatalities resulting from the contact of railway and highway traffic at grade crossings number only 2 per 100,000 persons and include those involving pedestrians and street cars as well as automobiles.

Electric Regeneration

Regeneration of power for single-phase locomotives equipped with series motors has been used for the first time under regular operating conditions in Switzerland. Road tests, on the recovery of the electric energy which the braking on down-grade movement renders available, were made on the Lötschberg line of the Swiss Federal Railways on June 27. The system tried was that of the Maschinenfabric Oerlikon, and the success is described as complete. Regeneration for three-phase railways, such as that on the Great Northern, has long been practicable, as it is an inherent characteristic of the three-phase motor to return electric power to the line when mechanical power is applied to the motor shaft. In the same way regeneration applies to the single-phase system used on the Norfolk & Western, as the motors on the locomotives are three-phase motors. It was made practicable for direct current operation in the design of the equipment used on the Chicago, Milwaukee & St. Paul, in which case the motors are separately excited by a motor generator set in order to make them function as generators. In the case of the single-phase series motors, one motor is separately excited from a transformer, and it supplies exciting current for the others which then function as generators and return power to the line. The particular significance of this development is that regeneration can be had without regard to the type of equipment and kind of electric power used.